Hospital Library

The New England JOURNAL of MEDICINE

FORMERLY THE BOSTON MEDICAL AND SURGICAL JOURNAL

Official Organ of The Massachusetts Medical Society
The New Hampshire Medical Society — The Vermont State Medical Society
The New England Surgical Society — The Boston Surgical Society, Inc.
The New England Pediatric Society — The New Hampshire Surgical Club
The New England Obstetrical and Gynecological Society
And The Neisserian Medical Society of Massachusetts

OWNED AND PUBLISHED BY THE MASSACHUSETTS MEDICAL SOCIETY

Volume 208 Number 17 | Domestic $6 per Annum, 25c per Copy Canada $7.04, Foreign $8.52 | APRIL 27, 1933 | Published Weekly in Boston at 8 The Fenway

CONTENTS

NEW ENGLAND BRANCH AMERICAN UROLOGICAL ASSOCIATION

The Report of a Case of Calcified Hydrocele Simulating Tumor. *C. J. E. Kickham* 869
The Value of Cystometry. *Richard Chute* 869
The Use of Cortin Following Removal of a Large Adrenal Tumor: Case Report. *George C. Prather* 872
Renal Tumor with Unusual Pyelogram. Case Report. *Augustus Riley* 877
The Endocrine Influence on the Male Sex Organs. *William E. Lower* 878

Bicornate Uterus with Report of an Unusual Case. *George Albert Moore* 887
Hematopericardium. *Edward B. Benedict* and *Chester M. Jones* 891
Trends and Programs in Medical Care. *Michael M. Davis* 892

MEDICAL PROGRESS

Progress of Gastroenterology in 1932. *A. E. Austin* 898

CASE RECORDS OF THE MASSACHUSETTS GENERAL HOSPITAL

Case 19171—Sudden Postoperative Collapse and Death. *John D. Stewart, Tracy B. Mallory* and others. Case 19172—Eructation of Gas, Anorexia, Abdominal Discomfort and Distention. *Richard E. Alt, George W. Holmes, Daniel F. Jones, Tracy B. Mallory, Aubrey O. Hampton, Arthur W. Allen* and others 904

EDITORIALS

Cerebral Involvement in Head Injuries 909
Periodic Payment Plan for the Purchase of Hospital Care 910
The Presentation of the Henry Jacob Bigelow Medal 911
An Important Meeting 911
This Week's Issue 911

(Contents continued on next page)

"This is a most commendable book. It splendidly fills a long-existing need, because the general practitioner is more interested in the *interpretation* of laboratory medicine than in laboratory technic."—*Francis B. Johnson, M.D., Charleston, S. C.*

This is only one of hundreds and hundreds of such unqualified endorsements of

Trumper & Cantarow's Biochemistry in Medicine

The success of this new book is not at all surprising—it has already been *reprinted!* It is successful because it is *not* a book of formulas but rather a book that interprets, clearly and distinctly, in terms of bedside medicine, the report of the biochemical laboratory.

The book gives every chemical fact of value to the general practitioner. Diabetes, hormones, and vitamins are discussed in terms of applied medicine. There is specific help in determination of the basal metabolic rate, together with the significance of an increase or a decrease of that rate, for males and females, and of various ages. There is a fine clinical presentation of *blood chemistry,* and everything else which the general practitioner wants to know about biochemistry and its application in his daily practice.

Octavo volume of 454 pages. By MAX TRUMPER, PH.D., Clinical Chemist and Toxicologist; formerly in charge of the Biochemical Laboratories of the Jefferson Medical College and Hospital; and ABRAHAM CANTAROW, M.D., Instructor in Medicine at Jefferson Medical College. With a Foreword by ELMER H. FUNK, M.D., Sutherland M. Prevost Professor of Therapeutics, Jefferson Medical College. Cloth, $5.50 net.

W. B. SAUNDERS COMPANY **Philadelphia and London**

Entered at the Postoffice at Boston as Second Class Matter

CONTENTS

(Continued)

THE MASSACHUSETTS MEDICAL SOCIETY
The Treasurer's Report Covering Dividend Distribution 912

BOOK REVIEWS
Clinique et Thérapeutique Hydro-Climatiques. Maurice Villaret and L. Justin-Besançon..... 920
Non-Tropical Sprue: A Study in Idiopathic Steatorrhoea. Th. E. Hess Thaysen..... 920
A Standard Classified Nomenclature of Disease 920
Your Hearing—How to Preserve and Aid It. Wendell C. Phillips and Hugh Grant Rowell 920

BOSTON MEDICAL LIBRARY..... 912

MISCELLANY
Comparison of Disease Incidence in Connecticut with 1932 and Seven Year Average Month Ending April 1, 1933..... 915
Mother's Day..... 886
A Radio Message Prepared and Sponsored by the Committee on Public Education of the Massachusetts Medical Society for the Department of Public Health. Only a Sore Throat. Lyman Richards..... 913
Résumé of Communicable Diseases in Massachusetts for March, 1933..... 914
The Treatment of Cutaneous Malignant Neoplasms. George M. MacKee..... 886

NOTICES 916
OBITUARY 915
RECENT DEATH..... 915
REPORTS AND NOTICES OF MEETINGS..... 916
SOCIETY MEETINGS, CONGRESSES AND CONFERENCES 919

The Massachusetts Medical Society

The next Annual Meeting of the Massachusetts Medical Society will be held at the Hotel Statler, Boston, on Monday, Tuesday and Wednesday, June 5, 6, 7, 1933.

OFFICERS AND STANDING COMMITTEES ELECTED BY THE COUNCIL, JUNE 8, 1932

PRESIDENT: HALBERT G. STETSON, 39 Federal Street, Greenfield.
VICE-PRESIDENT: WALTER A. LANE, 173 School Street, Milton.
SECRETARY: WALTER L. BURRAGE, 182 Walnut Street, Brookline.
TREASURER: CHARLES S. BUTLER, 257 Newbury Street, Boston.

STANDING COMMITTEES FOR 1932-1933

COMMITTEE OF ARRANGEMENTS
F. H. Colby, *Chairman;* G. P. Reynolds, W. M. Shedden, William R. Morrison, Horatio Rogers.

COMMITTEE ON PUBLICATIONS
Homer Gage, *Chairman;* J. W. Bartol, R. I. Lee, R. B. Osgood, R. M. Smith.

COMMITTEE ON MEMBERSHIP AND FINANCE
D. N. Blakely, *Chairman;* Gilman Osgood, G. C. Caner, J. E. Fish, H. F. Newton.

COMMITTEE ON ETHICS AND DISCIPLINE
David Cheever, *Chairman;* W. D. Ruston, S. F. McKeen, A. C. Smith, R. L. DeNormandie.

COMMITTEE ON MEDICAL EDUCATION AND MEDICAL DIPLOMAS
Reginald Fitz, *Chairman;* C. H. Lawrence, C. A. Sparrow, E. S. Calderwood, A. S. Begg.

COMMITTEE ON STATE AND NATIONAL LEGISLATION
H. G. Stetson, *Chairman;* T. J. O'Brien, F. E. Jones, A. W. Marsh, Shields Warren.

COMMITTEE ON PUBLIC HEALTH
Dwight O'Hara, *Chairman;* E. F. Cody, F. G. Curtis, Gerald Hoeffel, G. D. Henderson.

COMMITTEE ON MALPRACTICE DEFENSE
F. G. Balch, *Chairman;* E. D. Gardner, F. B. Sweet, R. P. Watkins, A. W. Allen.

COMMITTEE ON PERMANENT HOME: T. J. O'Brien, *Chairman;* S. B. Woodward, C. G. Mixter, J. M. Birnie, R. B. Greenough.

OFFICERS OF THE SECTIONS FOR 1933

ELECTED BY THE SECTIONS

The street addresses may be obtained from the Annual Directory

SECTION OF MEDICINE
Chairman, J. H. Means, Boston; *Secretary,* H. L. Blumgart, Boston.

SECTION OF SURGERY
Chairman, A. G. Rice, Springfield; *Secretary,* E. M. Daland, Boston.

SECTION OF TUBERCULOSIS
Chairman, Roy Morgan, Westfield; *Secretary,* Donald S. King, Boston.

SECTION OF PEDIATRICS
Chairman, E. S. O'Keefe, Lynn; *Secretary,* Joseph Garland, Boston.

SECTION OF OBSTETRICS AND GYNECOLOGY
Chairman, F. A. Pemberton, Boston; *Secretary,* J. W. O'Connor, Worcester.

SECTION OF RADIOLOGY AND PHYSIOTHERAPY
Chairman, Edward H. Trowbridge, Worcester; *Secretary,* Charles W. Blackett, Jr., Newtonville.

OFFICERS OF THE DISTRICT MEDICAL SOCIETIES

ELECTED BY THE DISTRICT MEDICAL SOCIETIES AT THEIR ANNUAL MEETINGS, BETWEEN APRIL 15 AND MAY 15, 1932.

The street addresses may be obtained from the Annual Directory

BARNSTABLE—*President,* G. H. Gray, Hyannis; *Vice-President,* J. L. Chute, Osterville; *Secretary,* J. I. B. Vail, Hyannis; *Treasurer,* H. B. Hart, Yarmouth Port; *Librarian,* E. E. Hawes, Hyannis.

BERKSHIRE—*President,* A. C. England, Pittsfield; *Vice-President,* M. H. Walker, Jr., Pittsfield; *Secretary,* H. J. Downey, Pittsfield; *Treasurer,* C. T. Leslie, Pittsfield.

BRISTOL NORTH—*President,* B. M. Latham, Mansfield; *Vice-President,* F. V. Murphy, Attleborough; *Secretary,* C. B. Kingsbury, Taunton; *Treasurer,* J. V. Chatigny, Taunton.

BRISTOL SOUTH—*President,* J. M. Salles, New Bedford; *Vice-President,* J. H. Lindsey, Fall River; *Secretary,* Charles Shanks, New Bedford; *Treasurer,* Charles Shanks, New Bedford.

ESSEX NORTH—*President,* O. P. Mudge, Amesbury; *Vice-President,* F. H. Coffin, Haverhill; *Secretary,* E. S. Bagnall, Groveland; *Treasurer,* E. S. Bagnall, Groveland; *Librarian,* A. M. Hubbell, Haverhill.

ESSEX SOUTH—*President,* C. L. Curtis, Salem; *Vice-President,* C. L. Hoitt, Lynn; *Secretary,* R. E. Stone, Beverly; *Treasurer,* Andrew Nichols III, Danvers; *Librarian,* C. M. Cobb, Lynn.

FRANKLIN—*President,* A. E. Johnson, Jr., Greenfield; *Vice-President,* H. B. Marble, Shelburne Falls; *Secretary,* Charles Moline, Sunderland; *Treasurer,* Charles Moline, Sunderland.

HAMPDEN—*President,* F. H. Allen, Holyoke; *Vice-President,* J. Z. Naurison, Springfield; *Secretary,* H. L. Smith, Springfield; *Treasurer,* H. L. Smith, Springfield.

HAMPSHIRE—*President,* M. E. Cooney, Northampton; *Vice-President,* J. D. Collins, Northampton; *Secretary,* F. E. O'Brien, Haydenville; *Treasurer,* F. E. O'Brien, Haydenville; *Librarian,* Jane B. Armstrong, Northampton.

MIDDLESEX EAST—*President,* E. M. Halligan, Reading; *Vice-President,* E. E. Tyzzer, Wakefield; *Secretary,* A. R. Cunningham, Winchester; *Treasurer,* Richard Dutton, Wakefield; *Librarian,* J. M. Wilcox, Woburn.

MIDDLESEX NORTH—*President,* Pierre Brunelle, Lowell; *Vice-President,* B. H. Pillsbury, Lowell; *Secretary,* T. A. Stamas, Lowell; *Treasurer,* M. D. Bryant, Lowell; *Librarian,* P. J. Meehan, Lowell.

MIDDLESEX SOUTH—*President,* F. W. Gay, Malden; *Vice-President,* A. H. Blake, West Somerville; *Secretary,* A. A. Levi, Cambridge; *Treasurer,* Edward Mellus, Newton.

NORFOLK—*President,* S. F. Curran, Dorchester; *Vice-President,* A. S. Begg, West Roxbury; *Secretary,* F. S. Cruickshank, Brookline; *Treasurer,* G. W. Kaan, Sharon.

NORFOLK SOUTH—*President,* W. J. McCausland, Quincy; *Vice-President,* F. A. Bartlett, Quincy; *Secretary, Treasurer and Librarian,* N. R. Pillsbury, South Braintree.

PLYMOUTH—*President,* C. G. Miles, Brockton; *Vice-President,* D. B. Tuholski, Brockton; *Secretary,* G. A. Moore, Brockton; *Treasurer,* A. C. Smith, Brockton; *Librarian,* J. H. Weller, Bridgewater.

SUFFOLK—*President,* W. H. Robey, Boston; *Vice-President,* J. H. Means, Boston; *Secretary,* L. S. McKittrick, Boston; *Treasurer,* John Rock, Boston.

WORCESTER—*President,* E. R. Leib, Worcester; *Vice-President,* W. C. Seelye, Worcester; *Secretary,* E. C. Miller, Worcester; *Treasurer,* E. T. Disbrow, Worcester; *Librarian,* A. C. Getchell, Worcester.

WORCESTER NORTH—*President,* R. A. Rice, Fitchurg; *Vice-President,* C. E. Thompson, Gardner; *Secretary,* F. M. McMurray, Fitchburg; *Treasurer,* F. H. Thompson, Jr., Fitchburg.

Fellow Members! We want your support.

The New England
Journal of Medicine

VOLUME 208 APRIL 27, 1933 NUMBER 17

NEW ENGLAND BRANCH, AMERICAN UROLOGICAL ASSOCIATION

THE REPORT OF A CASE OF CALCIFIED HYDROCELE SIMULATING TUMOR*

BY C. J. E. KICKHAM, M.D.†

THE following case is presented because of its unusual clinical features.

The patient, a white male of 41 years, married, was first seen in January, 1932, with a complaint of bilateral enlargement of the scrotum. There was no significant past history, except that he vaguely remembered an injury while coasting, at the age of 14 years. So far as he could tell, there had been no appreciable increase in the size of the testicles in recent years. There had been no discomfort associated with the condition, except that which resulted from the increased weight of the scrotum. The blood Wassermann was negative. There was no past history of venereal infection.

Examination of the scrotum on the left found a medium-sized cyst of the epididymis. The right side was filled with a large, hard, apparently solid mass, fully 8 cm. in diameter. The spermatic cord was normal above it. There was a small, firm body below it in the bottom of the scrotum. It was nontender. It did not transilluminate. The scrotal skin was not adherent to the mass beneath. The superficial blood vessels stood out prominently. It was believed that some form of thick-walled cyst was probably present, but it was impossible to be certain that we were not confronted with a true solid tumor of the testicle. Because of this possibility and the attendant chances of subsequent malignant degeneration, surgical removal of the mass was advised. Preliminary high voltage x-ray treatment over the scrotum and regional lymph nodes was first requested, however, because we feel strongly that no testicular neoplasm should be operated upon until such preliminary x-ray has been given. A program of preoperative deep x-ray therapy was instituted in this case, and three weeks after its completion a right orchidectomy was carried out.

Operation: Orchidectomy, right.

Preoperative Diagnosis: Calcified cyst or hydrocele, question of tumor, right.

Postoperative Diagnosis: Chronic Hydrocele.

A small linear incision was made over the spermatic cord as it emerged from the external ring. The cord was gently freed from its bed by blunt dissection and no clamps were placed on it at any time. It was doubly tied with No. 1 chromic catgut and divided distal to the ties with the actual cautery. The entire testicular mass was then enucleated without opening into it and with a minimum of trauma. All bleeding points in the scrotal cavity were tied with plain catgut. The scrotal cavity was then obliterated with a continuous suture of plain No. 1 catgut. The skin was closed with dermal, leaving a small rubber drain to stump of the cord through a stab wound in the dependent surface of scrotum. The preliminary x-ray exposures did not interfere with the dissection, although there was perhaps some increased vascularity and perhaps less ready lines of cleavage.

Pathological Report: (Quincy City Hospital) *Gross examination*—Specimen consists of a thick-walled sac measuring 9.5 x 7.5 x 4.5 cm.; laid open disclosing testis at one pole, compressed and about one half its normal size. The tubular seminiferi shred out normally. The sac wall is markedly thickened and fibrous in character, varying from 0.2 to 0.5 cm. immediately surrounding the testicular tissue. Many calcified areas are found in this markedly thickened wall. The lining of the sac is pale and smooth. The spermatic cord is normal in thickness. The epididymis is apparently normal. *Microscopic examination,*—The sac wall shows a dense acellular hyaline connective tissue. The sac is lined in part by a layer of flattened cells. *Testicle:* The epithelial cells lining the tubular seminiferi are generally distended, epididymis is normal except for a moderate infiltration of the interstitial tissues with lymphoid, plasma, and histocytic cells.

Diagnosis: Chronic hydrocele with calcification and hyalinization of sac.

*From the Surgical Service of the Quincy City Hospital.
Read before the meeting of the New England Branch of the American Urological Association, November 3, 1932.

†Kickham—Assistant Urologist, Pondville State Cancer Hospital. For record and address of author see "This Week's Issue," page 911.

THE VALUE OF CYSTOMETRY*

BY RICHARD CHUTE, M.D.†

I WOULD like to say a few words about some cystometric work in which I have been interested. As you know, various men have studied the complicated neuromuscular mechanism of the bladder by means of measurements of the bladder pressure and capacity, but the whole subject has been so vague and uncertain and the results so difficult to interpret that such measurements have never come into common use. However, in the last few years, Dr. D. K. Rose of St. Louis has studied this matter intensively and has made some very important contributions. Last spring I spent some time in Rose's clinic in St. Louis, and since then have done some work along those lines. Dr. Rose has devised a most ingenious machine called the cystometer which pumps fluid into the bladder and records simultaneously on a chart the amount

*Read before the meeting of the New England Branch of the American Urological Association, November 3, 1932.

†Chute—Assistant in the Urological Department, Massachusetts General Hospital. For record and address of author see "This Week's Issue," page 911.

of fluid put in and also the changing pressure reactions of the bladder as each cc. of fluid is put in. In addition, record is kept of the sensations experienced by the patient during all of this. Figure 1 shows the cystometer with

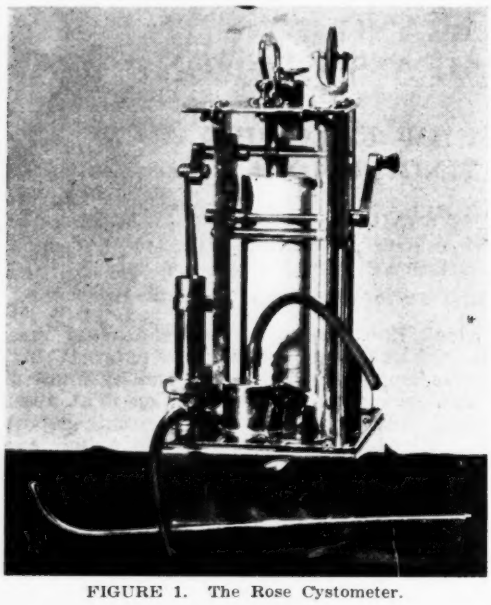


FIGURE 1. The Rose Cystometer.

the pump, the inlet and outlet pipes, the two-way metal catheter, and the chart on which volume and pressure are recorded.

We have not adequate time tonight to discuss the complicated neuromuscular mechanism of the bladder or the fine points of cystometric technique and interpretation, suffice it to say that it has been found that the normal bladder gives more or less characteristic cystometric findings as shown in figure 2. The temperature of the cool fluid is felt as soon as it starts to flow into the bladder. A mild first desire to void—V on the graph—is felt when about 150 cc. of fluid have gone in, at a pressure of 5 to 10 mm. of mercury. This is followed by a sense of great fullness — F — any time after 275 cc. at a pressure from 8 to 20 mm. of mercury, and is soon followed by the pain of overdistension—P—which may be expected any time after 450 cc. The entire filling shows consistently and steadily increasing resistance of the bladder wall.

There are two types of cases where I have been impressed with the practical value of cystometry. First are those cases of neurogenically disturbed bladders where by means of cystometry it can be ascertained accurately which nerve is affected. This accurate diagnosis of the nerve affected is important for intelligent treatment and recently has become doubly important in view of the possibility of benefit in certain cases through operative interference with the sympathetic nerve supply to the bladder, as reported by Learmonth and others. The second situation where cystometry is of very practical value indeed is, in doubtful cases, to differentiate between a neurogenic bladder and a mechanically obstructed one, e.g., prostate, and I would like to report two such cases very briefly. They are both cases from the Massachusetts General Hospital.

The first case concerns a man 70 years old whom I found in the out-patient department. Six years before he had come in complaining of difficulty in walking and inability to void. A definite diagnosis of

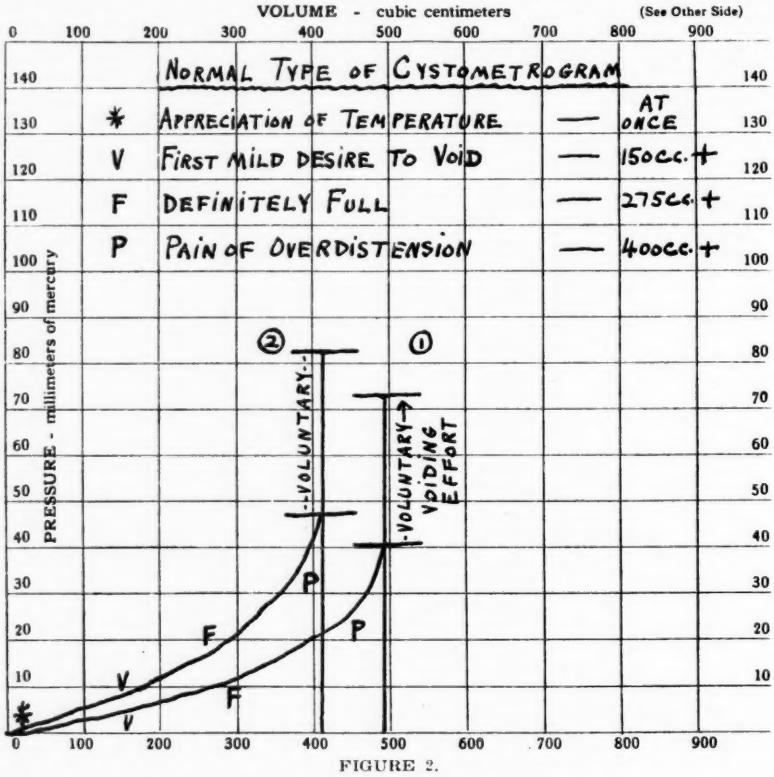

VOLUME - cubic centimeters
(See Other Side)
0 100 200 300 400 500 600 700 800 900
NORMAL TYPE OF CYSTOMETROGRAM
* APPRECIATION OF TEMPERATURE — AT ONCE
V FIRST MILD DESIRE TO VOID — 150cc. +
F DEFINITELY FULL — 275cc. +
P PAIN OF OVERDISTENSION — 400cc. +
PRESSURE - millimeters of mercury
140 130 120 110 100 90 80 70 60 50 40 30 20 10
① VOLUNTARY → VOIDING EFFORT
② VOLUNTARY
P
F
P
V
F
V
*

FIGURE 2.

tabes dorsalis had been made on him in the nerve department, as he had a strongly positive Wassermann in his spinal fluid, in addition to other neurological signs of tabes. He had been taught to catheterize himself and had done so several times a day for the past six years, as he was totally unable to void. Prostatectomy had never been considered, as it was thought that his retention was due to a tabetic bladder. Despite a lot of antiluetic treatment there had been no improvement or change in his voiding ability. Prostate by rectum was somewhat enlarged and benign. On looking through the cystoscope and the panendoscope, some median bar was seen and also some left lateral lobe, and some tissue in the prostatic urethra, probably enough to account for his symptoms, if tabes could be ruled out. Knee jerks were present. There was marked trabeculation of the bladder which is against a diagnosis of tabes but is not conclusive evidence. The conclusive evidence was furnished by the cystometrogram of his bladder which showed normal sensations and reactions to filling, good muscular power, and an external sphincter that was not spastic to cause obstruction. Therefore it seemed to me that his obstruction was mechanical and not tabetic, and operation was advised. Transurethral prostatic resection under spinal anesthesia was successful and the patient left the hospital being able to void very well for the first time in over six years and with no residual urine.

NOTE: Since this paper was originally written, this patient, although able to void and in much better condition than before operation, has developed considerable residual urine. Inspection through the panendoscope shows very definite intraurethral obstructing tissue, and at the present time another electric resection is contemplated.

The second case was a man of 50 who for the last five years had been unable to urinate except in a sitting position and then only by bearing down very hard, and who for the last half year had had difficulty in urinating at all; finally ending in acute retention shortly before entry. He had had a chancre on his penis, 20 years before, accompanied by a rash, and his doctor had given him some antisyphilitic pills at that time, but he had had no antiluetic treatment since then. He had a positive Wassermann in both his blood and spinal fluid. Both knee and ankle jerks were absent: Romberg test positive. By rectum, the prostate was not much enlarged. Cystoscopy showed some median bar formation and also some right lateral lobe. Marked trabeculation. A neurological consultant made a definite diagnosis of tabes dorsalis, but thought that the bladder was probably not seriously damaged by the tabes, and that the obstruction was more likely due to the prostate, but he could not be sure. Again the conclusive evidence was furnished by the cystometrogram which showed that the sensations, reactions, and musculature of the bladder were essentially normal and that there was no nerve damage. Transurethral prostatic resection was performed under spinal, was successful, and the patient left the hospital voiding very well and with only half an ounce of residual urine.

These two cases illustrate the very great value of cystometry in differentiating, in doubtful or puzzling cases, between a neurogenic bladder and a mechanically obstructed one. The knee jerks may be active or may be absent, the Wassermann of the spinal fluid may be positive, as in these two cases, but you cannot be sure whether the tabes has affected the bladder until you test the bladder itself and see what its reactions are.

One other thing that I think is very important to realize, is that when tabes does affect the bladder it does not necessarily always affect it in the same way. All tabetic bladders or other so-called "cord bladders" are very far indeed from being similar; there may be either

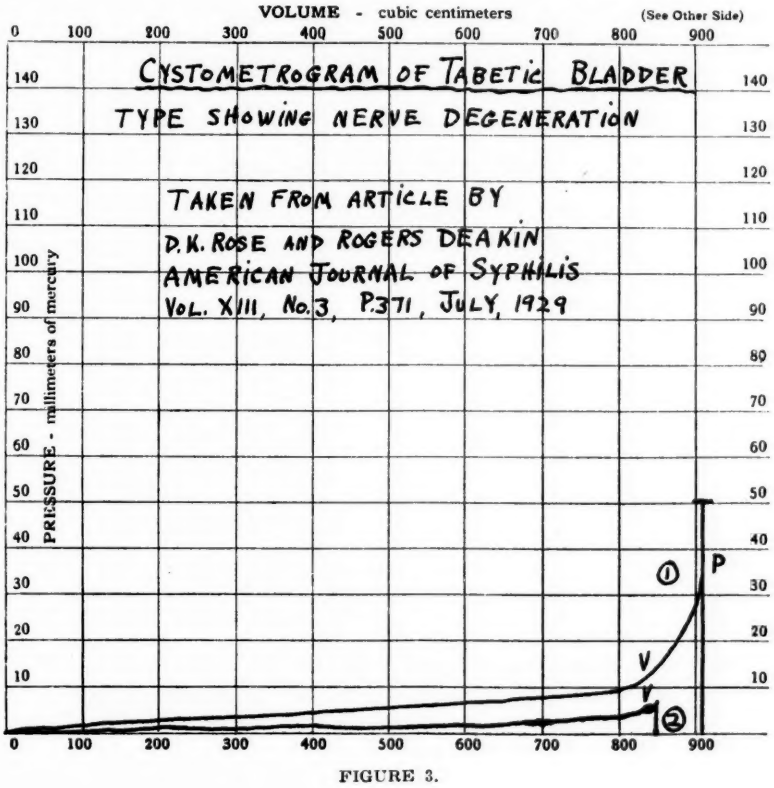
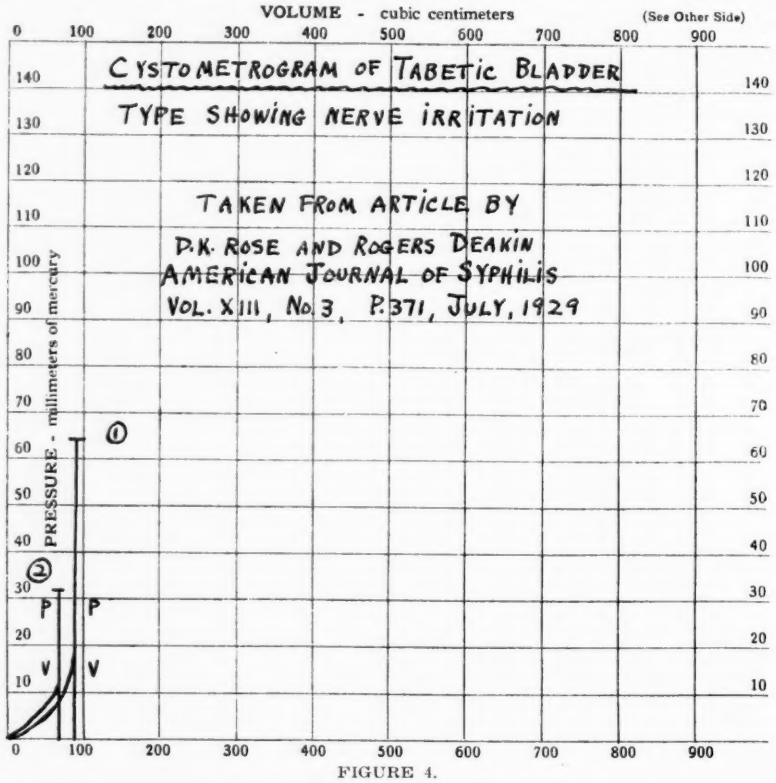

VOLUME - cubic centimeters
(See Other Side)
0 100 200 300 400 500 600 700 800 900
CYSTOMETROGRAM OF TABETIC BLADDER
TYPE SHOWING NERVE DEGENERATION
TAKEN FROM ARTICLE BY
D.K. ROSE AND ROGERS DEAKIN
AMERICAN JOURNAL OF SYPHILIS
VOL. XIII, No. 3, P.371, JULY, 1929
PRESSURE - millimeters of mercury
140 130 120 110 100 90 80 70 60 50 40 30 20 10
P
V
①
②

FIGURE 3.

a reaction which is predominantly of nerve degeneration or one which is chiefly of nerve irritation. The following two graphs, taken from an article of Dr. D. K. Rose and Dr. Rogers Deakin in the *American Journal of Syphilis*[1], show this difference in a striking manner. *Both* the patients had tabes which had affected their bladders, with 4 plus Wassermann in both blood and spinal fluid in each case, but see how different their bladders are. The chief complaint of the first one was of dribbling. He had a very large residual of infected urine. The graph (figure 3) shows very low intracystic pressure and no desire to void until 850 cc. (or more than 28 ounces) had been put in. No wonder this patient carried a large residual. This was a reaction of nerve destruction due to tabes.


VOLUME - cubic centimeters
(See Other Side)
CYSTOMETROGRAM OF TABETIC BLADDER
TYPE SHOWING NERVE IRRITATION
TAKEN FROM ARTICLE BY
D.K. ROSE AND ROGERS DEAKIN
AMERICAN JOURNAL OF SYPHILIS
VOL. XIII, NO. 3, P. 371, JULY, 1929
PRESSURE - millimeters of mercury
0 100 200 300 400 500 600 700 800 900
140 130 120 110 100 90 80 70 60 50 40 30 20 10
1
2
P
V
FIGURE 4.

The second patient's chief complaint was marked frequency day and night, although the urine was uninfected, there was no residual urine, and there was no infection anywhere in the urethra, prostate or bladder. As you see on the graph (figure 4) the desire to void and severe pain, both came with a rush when less than three ounces had been put into the bladder. This graph shows the effect of tabes irritating the low cord and giving constant stimulation to urination.

I feel that cystometry has a great future as it seems to be the true physiological method of studying the way the bladder performs its function in handling fluid, and because by it normal or abnormal conditions existing in the neuromuscular apparatus of the bladder are shown up as they can be in no other way.

REFERENCE

1 Rose, D. K., and Deakin, Rogers: The cystometric diagnosis of central nervous system syphilis. Am. J. Syph. 13: 371-390 (July) 1929.

THE USE OF CORTIN FOLLOWING REMOVAL OF A LARGE ADRENAL TUMOR*

Case Report

BY GEORGE C. PRATHER, M.D.†

THIS case report dealing with a large adrenal cortex tumor, is interesting principally because of the postoperative events. There seems to be sufficient evidence of the work of Hartman, et al[1], Britton and Silvette[2], Hunter, McMillan, Boyd and Cameron[3], to show that the hormone of the adrenal cortex has a definite influence on the systolic blood pressure. This influence, of course, has been demonstrated principally in Addison's disease. In the instance of the case here reported, a remarkable and persistent drop in the blood pressure occurred following the removal of an adrenal tumor. This state of hypotension seemed to be relieved per-

*From the Urological Service of the Beth Israel Hospital.
Read before the meeting of the New England Branch of the American Urological Association, November 3, 1932.

†Prather—Associate Urologist, Beth Israel Hospital. For record and address of author see "This Week's Issue," page 911.

manently only by the use of "Cortin" following failures of clyses, intravenous solutions, adrenalin or transfusions, in giving any sustained relief.

In order to present the story satisfactorily, events will be described in order of their occurrence.

Female, S. H. Aged 42.
Date of first admission 8-10-'31.
Date of first discharge 9-1-'31.

Present Illness:
Beginning approximately two years ago the patient experienced marked weakness, pallor, dyspnea, headaches, dizziness, tingling of the hands and feet, accompanied by 20 pounds loss of weight. During this period menstruation continued to be regular, but became very profuse in amount and lasted only two days. During the past year she has been seen in the outpatient department of one of the Boston hospitals where she was told the diagnosis was anemia due to uterine hemorrhage and was given liver without benefit. She was also given iron with marked alleviation of her symptoms associated with a gain in weight and excellent color but persistence of the paresthesia of the arms and legs. Six months ago the patient's periods ceased entirely. She experienced morning nausea with occasional vomiting and thought she was pregnant. At this time she had vague burning pains in the right anterior chest radiating through to the back accompanied by a nonproductive cough with voice unchanged. Also for the past six months she has been aware of distress in the right side of the abdomen with a feeling of fullness and finally noticed a lump which grew slowly, not associated with any real pain. She had maintained her weight satisfactorily after taking iron until two weeks ago, since which time she has lost six pounds.

Past History:
Born in Boston. Diphtheria, measles and chickenpox during childhood. Appendectomy in 1928.

Cardiorespiratory: Has been short of breath for the past five years and because of this, moved from the third floor to the first floor. No history of palpitation, hemoptysis or edema.

Gastro-Intestinal: Meals irregular—appetite poor.

Genito-Urinary: Negative. Catamenia; periods at 15 years and appeared regularly up to 38 years of age. Since then there has been profuse bleeding at the period until six months ago when periods suddenly stopped.

Neuromuscular: No symptoms except as in present illness.

Physical Examination: Well-developed, well-nourished middle-aged woman. Skull; symmetrical, no exostosis. Hair; brown, of fine texture. Face; small amount of hair on upper lip, none on cheeks. Skin; negative. Eyes; pupils equal and react to light and distance. Ophthalmoscopic; discs normal in size, shape and color. Media was clear and normal in color. Ears; drums normal, light reflexes normal. Nose; negative. Mouth; no ulcerations or pigmentation. Gums; no redness or leadline. Tongue; not coated, no tremor. Tonsils; small sized, no redness. Neck; thyroid not enlarged, glands not palpable. Thorax; symmetrical, expansion equal. Breasts; no tumors. Heart; apex impulse felt in the fifth interspace 8.5 cc. from midsternal line. Heart not enlarged. No thrills. A blowing systolic murmur all over the precordia. Peripheral vessels; radial pulses equal and regular. Vessel walls not thickened. Blood pressure 100/62. Lungs; resonance throughout, both lungs showed vesicular breathing, no râles heard. Whispered voice normal. Abdomen; a large, freely movable, slightly tender mass about 8 cm. in diameter was palpated in the right upper quadrant, firm and the consistency of liver. No abnormal pulsations or peristalsis. No shifting dullness or fluid wave. Spleen not felt. Kidneys; question whether mass was right kidney. Bladder; not palpable. Genitalia; no abnormalities found. Spine; negative to clinical examination. Extremities; arms, no pathology found. Legs; no pathology found.

Laboratory Reports: Urine acid, specific gravity 1.005-1.017. Albumin 0. Sugar 0. Acetone 0. Bile 0. Sediment; occasional w.b.c. No. r.b.c. No casts. Red blood count 5,610,000. Hemoglobin 75%. White blood count 9,000. Blood smear; polymorphonuclears 76%. Lymphocytes 23%. Large mononuclears 1%, r.b.c. appear to be normal in size and shape. Platelets appear normal. Stool; guaiac negative. No ova, parasites, w.b.c. or r.b.c. seen.

Blood Chemistry: Sugar 78—n. p. n. 36. Uric acid 2. Icteric index 6. Wassermann and Hinton negative.

Basal Metabolism: Plus 4. Renal function test 35% in two hours and 10 minutes.

Gastric Analysis: No free hydrochloric acid.

X-Rays: Chest; stereoroentgenographic examination showed several large lobulated masses with sharply-defined borders extending from the mediastinum into both hila which had the characteristic appearance of a neoplasm. (? Hodgkin's disease.)

Cholecystography: Examination by oral method showed the gall bladder poorly outlined, regular in contour and of homogeneous density.

G. I. Series: The esophagus showed no abnormalities. The stomach was of good tone with normal peristalsis. The pylorus was regular. The duodenal cap showed no definite irregularity. The second portion of the duodenum was angulated and displaced downward and laterally as if by pressure from an extrinsic mass. There was a pressure defect on the superior border of the hepatic flexure. The left kidney outline was visible and appeared normal in size, shape and position. The right outline was obscured. There was no evidence of calculi in the urinary tract.

Ureteral Pyelographic Examination (fig. 1): The right renal pelves and calices were well outlined. The pelvis appeared markedly elongated, depressed downward and inward. The infundibula were somewhat elongated and showed evidence of slight compression. The calices showed no abnormalities. The lower pole of the kidney was well outlined and low. The upper pole was indistinct. The ureter showed no definite abnormalities.

Conclusion of First Hospital Visit: The diagnosis seemed to be hypernephroma with metastasis to the chest. She was discharged to the tumor clinic of the outpatient department.

Progress Between First and Second Admissions: She received extensive x-ray therapy over the chest and upper abdomen with some relief of chest symptoms but no relief of abdominal symptoms. The chest x-ray showed no improvement as the result of x-ray treatments. The pain in the region of the abdominal mass became more severe and she was referred to the urological service for operation as a palliative measure hoping to remove the mass which was responsible for the abdominal discomfort. Her general

condition was exceptionally good despite the presence of the abdominal and chest mass.

Second Hospital Admission: 1-11-'32. Second date of discharge 2-17-'32. Concerning preoperative observations, several interesting items may be mentioned. First; the lack of change in the secondary sex characteristics in this patient with adrenal tumor was probably due to the fact that the menopause had occurred approxi-

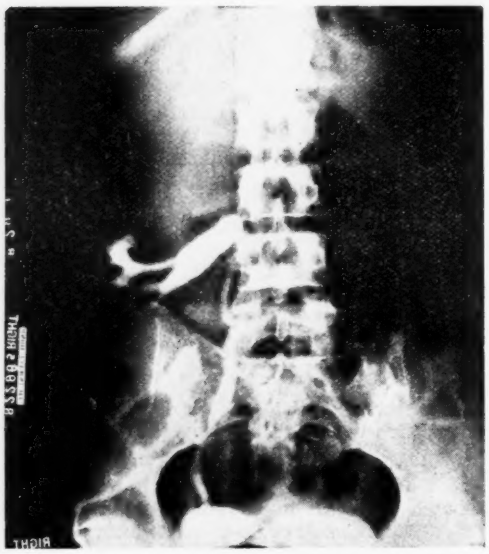


FIG. 1. Pyelogram showing right kidney pushed downward by a tumor mass above. No involvement of the upper calix of the kidney. Diagnosis, adrenal tumor.

mately several months before this tumor became of appreciable size, although it was impossible to state the possible influence of the original hyperplasia in causing the menopause. Secondly; the patient's general health, color and weight were remarkably good for one having as much evidence of tumor formation as she has. Thirdly; neither the tumor in the right upper quadrant nor the enlarged mediastinal shadows as shown by x-ray, were radiosensitive. Fourthly; the mediastinal shadows as shown by x-ray are not typical of hypernephroma metastasis as such metastasis usually occurs as distinct nodules in the lung periphery. Fifthly; as shown by the pyelogram, this was probably a pure adrenal tumor, rather than hypernephroma of kidney.

Operation: Under spinal anesthesia, 1-13-'32. A transverse incision was made in the right loin just below the twelfth rib. The large mass was identified as being retroperitoneal with large veins on the surface. The mass was separated quite easily from the upper pole of the right kidney where it was attached only by fine adhesions. It was the size of a large grapefruit and before it could be delivered the anterior end of the incision had to be enlarged opening the peritoneum at that time. The peritoneum was later sutured. The tumor was finally delivered and removed finding no pedicle. The tumor seemed to be entirely encapsulated. Three cigarette wicks were placed to the tumor cavity and the wound closed in four layers.

Pathological Report on Tumor Removed (figs. 2 and 3): Specimen consists of a large tumor mass weighing 2.5 lbs. (1230 Gm.) and measuring 15 x 25 x 9 cm. It is encapsulated for the most part by a very thin, dull white, opaque membrane. Extending from the inferior border is a tab of tissue continuous with the capsule at the distal border of which are several nodular masses intertwined with fatty tissue. The structure is semi-soft in consistency, and cuts with definite ease, presenting a finely granular, golden-yellow, slightly bulging cut surface, in which definite lines of demarcation are seen, as evidenced by depressions of a greyish-white glistening tissue. Within the flecked yellowish material definite areas of structureless, more or

FIG. 2. Specimen of tumor removed measuring 15 x 25 x 9 cm. Weight 1230 grams. (2½ pounds.)

FIG. 3. Same tumor mass as figure 2 split open showing its solid structure.

less homogeneous, irregularly distributed, lighter yellow material are seen. Hemorrhagic specking is noted occasionally. The capsule is distinctly separated from the tumor tissue, for the most part. However, in certain areas a definite infiltration is noted. On further sectioning, a mucinous type of material, which is greyish-white, translucent, and thick, is noted within the tumor mass. In one portion a blood clot

is present with a precursory formation of a cyst. On further examination of the mass, including the capsule and extending 1 cm. into the tumor tissue, is a group of greyish-yellow papillations mixed with purplish-grey, glistening, softer material. Photographs and frozen section were taken of the mass. The strands of tissue previously described, extending from the inferior border to the distal end of which are definite nodules, reveal on cut section a picture akin to, and not unlike that found in the tumor mass.

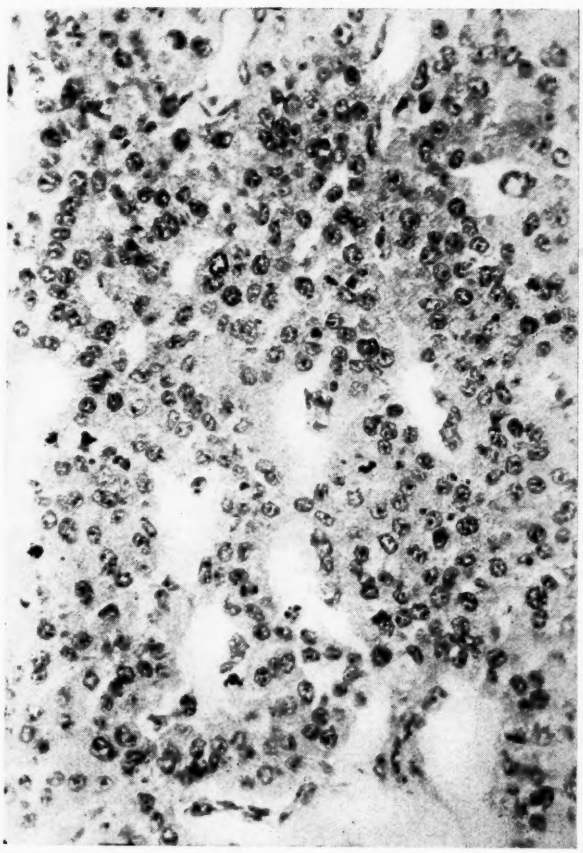


FIG. 4. Photomicrograph of adrenal tumor. This photomicrograph shows the resemblance of the tumor tissue to normal adrenal cortex. The coalescent cords of polymorphous cells are well seen. The nuclei, in general, are large and oval-shaped, but they show some variation in size and shape. They contain a scant chromatin mesh, with from one to several nucleoli. Numerous mitotic figures, both monasters and diasters, are observed. The cytoplasm has a granular appearance. (Eosin-methylene blue preparation.)

Microscopic section reveals a tumor mass (fig. 4) rich in cuboidal cells and poor in connective tissue. Somewhat dense bands separate the mass into lobules. Covering the connective tissue framework and extending into the spaces in a papillary form are large cuboidal cells possessing a vesicular foamy cytoplasm. The nuclei are round, small and deeply chromophilic. The cells are arranged in parallel rows growing out from the framework. Large areas of necrosis are situated throughout the section. These areas of necrosis are interestingly enough situated away from the fibrous connective tissue septa and hence removed from the course of blood supply. These necrotic areas appear as pink staining, irregularly granular tissue without structure. A very slight cellular reaction is noted about it. Most of the cells are of the polymorphonuclear variety. Patches of golden-brown pigment are noted. Occasional very large mononuclear cells are encountered. The nuclei are large, deeply chromophilic occupying the center of the cell. A large amount of deeply staining cytoplasm composes the rest of the cell. From the striking dense cell border one gets the impression of the cell having a typical stellate appearance. The vascular channels are wide open possessing very thin walls. Some of the inflammatory cells, of a more chronic nature, have a perithelial arrangement.

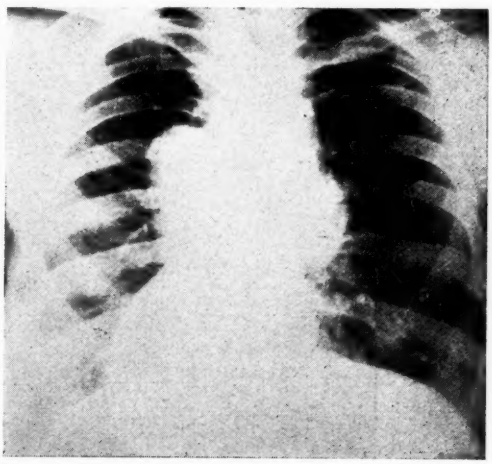


FIG. 5. Chest plate showing enlarged hilus shadows and a few nodules in the lung periphery.

Further examination reveals calcification occurring within the areas of necrosis. Numerous large to small channels, partially lined by an endothelial layer of cells, are filled with pyknotic tumor cell thrombi. The connective tissue septa are very fibrillar and relatively acellular.

Several sections reveal areas of fatty tissue situated in relation to dense collagenous fibrous connective tissue. The connective tissue septa are dense containing vascular channels which are free of thrombi, some old pigment being identified here.

Diagnosis: Hypernephroma. The accompanying chart of blood pressure (fig. 6) readings has been abstracted from the bedside records and has been condensed from blood pressure readings which were taken every fifteen minutes during the first 72 hours postoperative, gradually increasing the interval between observations as the pressure became stabilized. Although there was nausea and low blood pressure following operation, the patient's general condition did not seem to be one of surgical shock. There was no evidence of external or internal hemorrhage. The pulse rate was relatively low, and the skin warm and dry. The chart shows clearly how intravenous solutions would boost the blood pressure for a matter of several hours and likewise demonstrated a similar effect from transfusion. The use of adrenalin, ephedrin and caffein-sodium-benzoate, produced only very meager and transient changes in the systolic pressure; consequently when the pressure dropped to 68/48 on the second postoperative day several hours following a transfusion, the question of an acute adrenal cortex insufficiency became of moment. On the theory that the removal of this amount of adrenal cortex tumor had in some way produced a temporary inhibition concerning the activity of the opposite adrenal, communication was established with Dr. Frank Hartman of

Buffalo, N. Y., who very courteously and graciously put his adrenal cortex extract immediately at our disposal. Fortunately some of

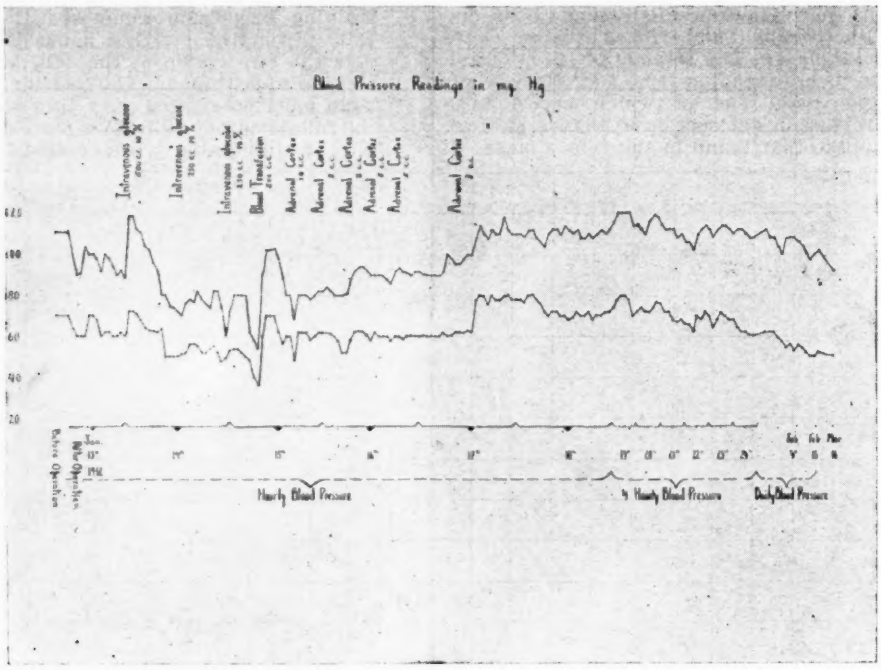


FIG. 6. Chart of the blood pressure postoperative which has been summarized from blood pressure readings taken every 15 minutes during the first 72 hours after operation. It shows the transient effects of intravenous solutions and transfusion in raising the systolic pressure. It also shows the effective and permanent result on the blood pressure from the administration of adrenal cortex hormone subcutaneously.

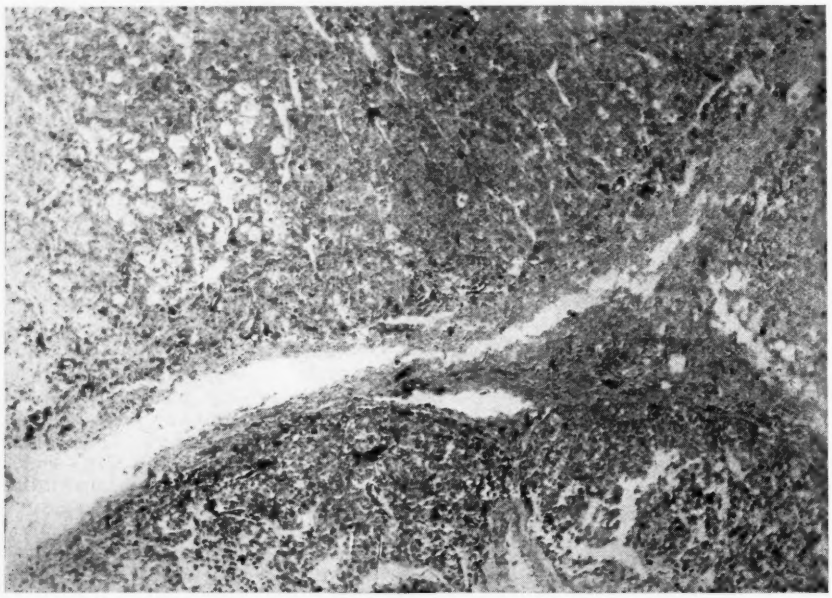


FIG. 7. At the left of the photomicrograph is seen a portion of the left adrenal cortex with a metastatic tumor nodule at the right. While most of the columns of adrenal cells have a normal appearance, those seen in the lower half show a moderate degree of fatty infiltration. The tumor tissue is arranged in large irregular cords, some of which take a circular form. The tumor is not infiltrative in character, but is separated from the adrenal cortex by a thin layer of fibrous connective tissue. (Eosin-methylene blue preparation.)

that material had just been received in Boston, so that it was possible to begin the administration of this substance at once. It was gratifying to observe the gradual improvement in the blood pressure following the use of this material during the next 48 hours. As the systolic pressure at that time averaged about 110, further use of "Cortin" was not deemed necessary. During the period of the use of

"Cortin", nausea ceased and general conditions improved materially so that from the time of its administration it was not necessary to use fluids in any other manner except by mouth.

Convalescence was otherwise uneventful. The wound healed by primary union and the patient was discharged from the hospital 33 days after operation.

Progress Between Second and Third Admissions: The patient remained in a very satisfactory condition for two months after leaving the hospital. Following a long automobile trip at this time, she began to have pain in the lumbar region, girdle-like in character, radiating to both sides. This was accompanied by dizziness and loss of appetite so that it was necessary to readmit her to the hospital.

Third Hospital Admission: 5-1-'32. Third date of discharge 7-3-'32. Examination; blood pressure 110-88. Abdomen, pain and tenderness in the left upper quadrant and epigastrium. There is an orange-sized mass in the right upper quadrant. The wound is healed. Urine negative, r.b.c. 4,900,000, w.b.c. 8,000. Hemoglobin 65%. Blood sugar 64, n.p.n. 35.

By 6-21-'32 a mass had appeared in the epigastrium and left upper quadrant. X-rays of the spine were negative for metastatic lesions. There was gradual failure in her general condition and death occurred on July 3, 1932. Limited autopsy was obtained.

Autopsy: Was confined to an abdominal incision and revealed no outstanding findings except the occurrence of metastasis in the liver, retroperitoneal tissue, right kidney, mediastinal lymph nodes, lungs, posterior surface of the uterus, posterior wall of the bladder and left adrenal. The left adrenal measured 7x4x3 cm. It was softer in consistency than normal and had a greenish brown, moist, glistening cut surface which showed numerous slightly bulging nodules some of which were opaque white in color.

CONCLUSIONS

1. Tumors of the adrenal cortex do not always produce changes in the secondary sex characteristics.
2. Metastases to the chest from such a tumor may resemble Hodgkin's disease by roentgenogram.
3. A low blood pressure postoperative accompanied by nausea and collapse can be due to adrenal cortex insufficiency.
4. "Cortin" (extract of adrenal cortex) effectively relieved this state of hypotension in the case report here described.

REFERENCES

1 Hartman, F. A., et al.: Treatment of Addison's disease with an extract of suprarenal cortex (cortin). J. A. M. A. 98: 788 (Mar. 5) 1932.

2 Britton, S. W., and Silvette, H.: Effects of corticoadrenal extract on carbohydrate metabolism in normal animals. Am. J. Physiol. 100: 693 (May) 1932.

3 Hunter, C.; McMillan, J. C.; Boyd, W., and Cameron, A. T.: Cortical adrenal tumour; clinical conference at Winnipeg General Hospital. Canad. M. A. J. 25: 188 (Aug.) 1931.

4 Shipley, A. M.: Paroxysmal hypertension associated with tumor of the suprarenal. Ann. Surg. 90: 742, 1929.

5 Horák, J.: Case of Addison's disease successfully treated with cortin and adrenal cortex extract. Endocrinology. 16: 285 (May-June) 1932.

6 Carlson, H. E.: Compensatory hypertrophy of suprarenal glands in the rat. Endocrinology. 15: 524 (Nov.-Dec.) 1931.

Discussion

Dr. William C. Quinby: These conditions are exceedingly interesting and little known so far as their clinical manifestations are concerned and when carefully studied, as this one manifestly has been, are distinctly worth publishing. We must report such cases in order that, in time, sufficient evidence will be at hand for definite clinical deductions. I wish to congratulate Dr. Prather for having studied this case so intensively and so well.

RENAL TUMOR WITH UNUSUAL PYELOGRAM*

Case Report

BY AUGUSTUS RILEY, M.D.†

I WOULD like to show an x-ray picture. This woman was in two or three different hospitals before she came to our hospital and there was a question at the time of what she had. She had been treated for stomach trouble, Banti's disease and other suspected conditions. She was 68 years old, her chief complaint was weakness. I show this to illustrate what you see in pyelograms without any urinary symptoms. Her temperature and pulse chart did not help us. She had no urinary symptoms. It was very misleading in a great many ways until we got a pyelogram and then we were not sure.

The patient had a large mass in the left side. At the time of the cystoscopic examination we got nothing from that side, but did get a normal flow from the other ureter. She showed no dye from the left side whatsoever. The mass extended from above the costal margin down into her pelvis and its nature was questionable. The diagnosis before operation was probably a perinephritic abscess or some abscess of the kidney that had broken through. The woman was quite ill, and there was nothing on the chart to help us at all; her blood was normal. She was opened under local anesthesia and we expected to find a big abscess. On going in we found this enormous mass with necrotic areas, etc., and a piece was taken out for examination. Examination at the time, by frozen section, showed it to be an invading tumor. We got out enough to give the pathologist a good section and sewed the patient up because we felt that with an invading tumor it might be one of the hypernephromas. The patient lived only 48 hours after the operation, done under local, and the tumor proved to be a hypernephroma. At operation this whole area was necrotic and the mass itself had many necrotic areas in which you could insert a finger without detecting any resistance. I show this because the x-ray men tell me it is an unusual picture, and as a curiosity.

*Read before the meeting of the New England Branch of the American Urological Association, November 3, 1932.

†Riley—Visiting Surgeon in Urology, Boston City Hospital. For record and address of author see "This Week's Issue," page 911.

THE ENDOCRINE INFLUENCE ON THE MALE SEX ORGANS*

BY WILLIAM E. LOWER, M.D.†

THAT certain glands secrete substances which have far-reaching effects upon the body economy has been appreciated since the time of Claude Bernard. Since his work and that of Brown-Séquard an enormous literature has accumulated, dealing with the effects of hyper- and of hypofunction of each of the endocrine glands. In spite of an accumulating knowledge regarding the interaction of the hormones produced by the endocrine organs we are still too prone to treat only the gland which is obviously malfunctioning without seeking to discover whether the cause of that malfunction may be some disorder in another related gland. Thus it has recently been shown by Crile[1] that in cases of residual or recurrent hyperthyroidism or even in some cases of primary hyperthyroidism, the adrenals may be attacked and the disease ameliorated or cured. Leriche and Jung[2] have demonstrated a direct relationship between the parathyroids, calcium equilibrium and nutrition of the skin and subcutaneous tissue, connective tissue growth and involuntary articular sensibility. So in dealing with diseases of the sexual organs it may be that some distant gland is in part at least responsible for the condition.

Although our central theme is the influence of certain hormones upon the prostate gland it will be of interest and value to offer a brief review of our present knowledge regarding the influence of the endocrine glands upon the sex organs.

Thyroid: Clinically it is known that patients with hyperthyroidism may have menstrual disturbances and diminished libido, and hypothyroidism may also result in sexual depression. Some cases have been reported in which thyroidectomy has led to atrophy of the sex organs, but this action may be due to the retardation of the general metabolism which in itself would result in sexual depression. Hammett[3] reports that, in rats, thyroidectomy produces diminution or variation in the weight of the testes or ovaries and an accelerated growth of the hypophysis in the male.

Various reporters have investigated the effects of castration on the weight of the thyroid gland but their findings are not in agreement. Thus Hatai[4] finds that the thyroid is not affected by castration while others report some resultant hypertrophy.

Thymus: The mass of evidence points against any important relationship between the thymus and the sex glands, the best evidence of such a relation being its involution at puberty and its delayed involution following castration. Andersen[5], however, concludes that thymectomy does not prevent, hasten or delay sex maturity and does not prevent the occurrence of normal litters.

Various investigators have reported that the thymus is heavier in castrated than in normal animals and Soli (1909[6]) reported that thymic involution is delayed in spayed females.

Reports on the effects of feeding thymus to young animals have been made by various investigators. Hewer[7] reports delayed development and even degeneration of the testes and Gudernatsch[8] (1912) noted marked growth and delayed metamorphosis in tadpoles. However, doubt was thrown on all earlier experiments on the effects of thymus feeding by Romeis[9] (1926) who found no resultant changes if an adequate supplementary diet was given.

A few reports state that the administration of thymic extract leads to delayed development of the testes, and that testis implants or the injection of adult serum hastens atrophy of the thymus.

Adrenals: Hirsutism, pseudohermaphroditism, sex precocity, or masculinization are often associated with a tumor of the adrenal cortex, these phenomena disappearing in some cases when the tumor is removed. Most of the reported cases of adrenal tumors have been in females.

I have had one case that is interesting in this connection. The patient was a girl, four years of age, who showed extremely precocious sexual development. Her breasts were well-developed, pubic hair was present and she had menstruated. Examination appeared to show that the right kidney was abnormally large and therefore an exploratory operation was performed. The kidney was found to be normal but the adrenal gland seemed to be enlarged. It was decided to compare this with the left adrenal which was found to be even larger than the right one. The left adrenal and a portion of the right one were removed.

This child is now twelve years of age and a recent letter from her mother gives a picture of a healthy normal girl weighing 93 pounds, a normal weight, although when she was five years of age she weighed 75 pounds, as much as her sister who was ten years old.

She has always menstruated five or six times

*Read at New England Branch of the American Urological Association, Boston, Mass., November 3, 1932.

†Lower — Associate Professor of Genito-Urinary Surgery, Western Reserve University. For record and address of author see "This Week's Issue," page 911.

a year, but now she menstruates regularly every twenty-eight days. She enjoys all normal activities of a child of her age and is a good swimmer. This brief outline is offered merely to illustrate the influence of the adrenals on the sexual organs and the possibilities of correcting the precocious development by the reduction of adrenal activity.

Various investigators have found that degenerative testicular changes occur in adrenalectomized animals. In pregnancy the adrenals are somewhat enlarged and the same is the case in ovulating birds. It has been observed that pregnant animals withstand the effects of adrenalectomy longer than normal animals as is true also of hibernating animals. This may indicate the rôle of the pituitary in this condition, although Rogoff and Stewart[10], and Mulon[11] suggest that the corpus luteum acts as a temporary adrenal gland.

That enlargement of the adrenals follows castration has been reported by some investigators, while feeding adrenals to animals leads to an increased size of the testes. Corey and Britton[12] report that sex precocity especially in female rats is produced by injections of cortical extract. Klein[13] found that injection of extract of the adrenal cortex produced an increased size of the male sex organs and a decrease in the female organs.

Clinical evidence indicates a definite relationship between the adrenals and the sex organs. The experimental evidence as to such a relationship is not so clear but with the use of potent cortical extracts such as have been prepared by Swingle and Pfiffner[14], Hartman[15] and others, there is gradually accumulating evidence which indicates a definite gonad-adrenal relationship.

Pineal Gland: Clinically, sexual precocity is often associated with tumors of the pineal gland. Because of the reports of various observers and the fact that the pineal body begins to atrophy at about the age of puberty, a sex inhibiting function has been ascribed to this gland. There is, however, insufficient experimental evidence of a pineal-gonadal relationship. Extirpation experiments have been rather unsuccessful although Foa, Horrax, et al[16, 17], report that they found increased sexual activity and growth in various animals—mostly male—after removal of the pineal body; but other investigators report negative results.

Experiments with the administration of pineal gland extract have been unfruitful. Beach and Hulles[18] report the occurrence of pineal atrophy in castrated cats.

Pituitary Gland: There is an abundance of literature relating to the pituitary-gonadal relationship. Sexual precocity occurs in children with pituitary tumors while hypopituitarism results in infantilism and cases of hypoplastic genitalia have been reported in which acromegaly has been associated with menstrual disorders or impotence, with a disappearance of these disturbances after the removal of the tumor.

The pituitary-gonadal relationship is gradually being established by the work of many investigators. The enlargement of the pituitary gland in pregnancy and after castration has received attention, and the effects of hypophysectomy have been studied by different investigators who have shown that the genital atrophy following hypophysectomy may be prevented by fresh pituitary implants. Smith and Engle[19] have shown that pituitary hormone acts on the testes and these in turn on the secondary and accessory sex characteristics, a finding which as we shall show later has a direct bearing upon our own investigations. The work of various other investigators might be cited to show that there is a definite gonadal-pituitary relationship.

Epididymis and Prostate: A few reports state that extracts of the epididymis and of sperm contain material which promotes comb growth. Lawless[20] found that in castrated rats with an intact epididymis, the characteristic changes of castration occur. He concludes that in the absence of the testes the epididymis does not produce enough secretion to maintain the normal sexual characteristics.

It has been claimed that the prostate gland has an internal secretory function. Serralach and Pares[21] found that the accessory sex organs atrophied following prostatectomy and that the atrophy was overcome by the administration of prostatic extract. DuBois and Boudet[22] found that the administration of normal prostatic extract produced contraction of the bladder while extract of hypertrophied prostates did not produce such contraction. Collip[23] and others have reported that the injection of prostatic extract produces blood pressure changes. However, there is but slight evidence that the prostate has any important function as an organ of internal secretion.

Gonads: Some cases of precocious puberty have been observed in the presence of tumors of the testis or ovary. In some of these cases the symptoms regressed after the tumor was removed.

That atrophy of the prostate follows castration has long been appreciated. Experimentally it has been found that cryptorchidism, radiation, partial resection or transplantation of the testes leads to testicular germinal atrophy while the Leydig cells persist. Because of these findings and the more direct evidence from Aron's[24] experiments on the triton, one of the salamanders, in which the interstitial testicular tissue is gathered in a mass at the hilus and can be completely removed, Bouin[25] has concluded that the

interstitial tissue is the source of the secretion of the testis. Bascom[26] has shown that the interstitial cells of the testes appear earlier than those of the ovary.

That there is a definite relationship between the testes and the secondary sexual characteristics and accessory organs cannot be doubted.

The influence on sex of heterogeneous implants has been studied by Moore and others[27] who found that when the ovary and testis are grafted together there is not antagonism between the two but rather a competition for the gonad-stimulating hormone. Lillie's[28] experiments with the free-martin, a modified female, may be explained on this basis. This is essentially a parabiosis *in vivo*.

The effects of castration may be completely nullified by the administration of the extract of male urine or of lipoid extracts of bulls' testes as has been shown by Moore[29] and his co-workers.

That there is a definite male as well as a female hormone seems to be well proved.

Male Sex Hormone: Brown-Séquard was really the first to postulate that the testes have an internal secretion. Pézard[30], who was the first to study the effects of active extracts of the testes by the cockscomb method, found that extract from cryptorchid testes produced full comb growth in a capon. Since Pézard, various investigators have studied the male sex hormone problem extensively. These investigators have found that it is present in the testes at all ages and also in the urine, although the amount is decreased in old age. They found further that this hormone can repair the changes produced by castration.

The work of many investigators has been summarized by Moore[29], who concluded that there is an antagonism between the sex hormone and the hypophyseal gonad-stimulating hormone, and that an excess of either the male or the female gonadal hormones depresses the production of the hypophyseal hormone. Malnutrition also produces a depression of the hypophyseal function. This explains the effect upon the characteristic changes after castration of the administration of the heterogeneous sexual hormone. Moore claims that the hypophyseal-sexual relationship exists by virtue of the presence of a hormone which acts directly on the gonads, causing them in turn to act on the other organs of the genital system.

EXPERIMENTAL STUDIES

This is but a brief and general review of an enormous literature. It is sufficient, however, to indicate why in our studies of prostatic hypertrophy with special relation to prophylaxis we turned our attention to the endocrine relationship between the prostate and the other glands of internal secretion, especially to the testes and the hypophysis. Our premise was that if the testes produce a hormone which promotes the growth and activity of the other sex organs and if the hypophysis is inhibited by this hormone, some practical application might be made of this principle.

The following researches have been made with the collaboration of Dr. R. L. Johnston, Dr. D. R. McCullagh, Dr. N. F. Hicken, W. Kenneth Cuyler and recently Dr. E. L. Walsh has joined us.

Changes in the Function of the Prostate Gland as a Result of Injections of Prehypophyseal Hormone

A group of immature male rats received daily injections of anterior pituitary hormone (luteinizing hormone, Parke-Davis). All these animals exhibited a precocious sexual development with a definite hyperplasia of the prostate. When the same hormone was injected into adult male rats a larger dose of the hormone was required to produce hyperplasia, but when excessive doses were administered, the testes and prostate were diminished. This indicates that the prehypophyseal hormone can stimulate either an immature or mature gonad and produce prostatic enlargement.

A number of adult male rats were castrated and were observed until the prostate and seminal vesicles were very small and atrophic. These animals then received injections of the anterior pituitary hormone over a long period of time. At autopsy, the prostate and seminal vesicles were found to be still atrophic, and there was no evidence of cellular stimulation on microscopic examination. Three groups of castrated rats received respectively injections of a saline extract of rat's testes and anterior pituitary hormone, of an anterior pituitary hormone extract of rat's testes and of testicular mush (rat) and anterior pituitary hormone without any resultant stimulating effect. This tends to show that the anterior pituitary hormone cannot influence the size of the prostate in the absence of normally functioning testes.

If the hypophysis controls the development of the sexual organs through the intermediation of the testes, does it influence the interstitial or tubular portions of the gonads to elaborate the so-called sex hormone?

In previous experiments it was shown that if the testes of rats were subjected to sufficient doses of roentgen-ray or radium emanation there was a pronounced degeneration of the tubular and spermatogenic tissue with preservation of the interstitial cells. Radiation was applied to cryptorchid animals with the same results. Such animals were given prehypophyseal hormone for several weeks at the end of which the same degree of prostatic enlargement was seen as in the group of normal males that received similar injections. It appears that anterior pituitary

hormone stimulates the interstitial cells of the testes to produce the "sex hormone" that governs the size of the prostate, and that the tubular and spermatogenic tissue play no part in its production.

Studies of Injection of the "Male Sex Hormone" and its Influence on the Testes and Prostate

The excess of the "male sex hormone" that is formed by the anterior pituitary gland and the gonads is excreted in the urine, as demonstrated by Funk and others. In the Department of Biochemistry, of the Cleveland Clinic Foundation, Dr. D. R. McCullagh has developed a method for extracting quantitatively this substance from the urine. The extract is then purified and can be injected into animals without toxic reactions.

We were interested to know whether this hormone as it is found in the urine is the same as that which produces enlargement of the prostate. Normal adult male rats and mice were given daily injections of the purified extract secured from urine. There resulted a definite hyperplasia of the seminal vesicles and prostate. Another group of rats was castrated and after the secondary sex organs became atrophic, the animals received injections of the "sex hormone". It was found that both the prostate and seminal vesicles had returned to normal size, and if large injections were continued, the epithelial tissue resembled that of the hypertrophied prostate. Thus in the absence of the gonads and their secretion, the "hormone" found in urine was able to regenerate the atrophic sex organs, and even to produce hyperplasia.

If the secretion found in normal urine is the same as that formed by the testes, then one should be able to prevent the atrophy of the sex organs that follows castration. The rats were castrated and then received daily injections of the sex hormone. One month later the animals were examined and the prostate and seminal vesicles were found to be normal, no atrophy having taken place. Apparently the replacement action of the male hormone had been to supply the substance that the gonads generate so that normal prostatic growth was maintained[31].

From these studies of the hypophyseal-gonadal relationship, we may conclude that the anterior pituitary gland activates the interstitial cells of the gonads, which elaborate a hormone that governs the size and function of the prostate and seminal vesicles. The "male sex hormone" found in the urine of normal males, when injected either into normal or into castrated animals, is capable of producing prostatic enlargement.

An Experimental Research by Means of Parabiosis of the Hypophyseal-Gonad-Influence on the Growth of the Prostate Gland

We have described above experimental studies in which it was demonstrated that the injection of anterior pituitary lobe extract into a normal male rat acts through the intermediation of the gonads and produces prostatic hypertrophy. But in administering this hormone, one does not know whether he is injecting one or several substances. How then could a pure, untreated pituitary hormone be obtained? It was known that the hypophysis of castrated animals increased in size and presumably in function. How then could the pituitary secretion be transferred from the castrated to the normal animals without chemical extraction? This was accomplished by producing an anatomical union between two animals, by so-called parabiosis.

A lateral skin incision was made on opposite sides of each animal from the hip to the shoulder, and each abdominal cavity was opened by a lateral incision extending from the pelvic girdle to the diaphragm, the muscular walls and peritoneum of the two animals being sutured in a circular fashion, so that a permanent artificial opening connected the two peritoneal cavities. The skin was then closed in a circular manner, the technic being similar to that used in a gastro-enterostomy. This artificial opening permits a free exchange of peritoneal fluid, and the intestines of one animal may pass into the peritoneal cavity of its partner. In forty-five such mates, the anastomotic opening has remained patent in all but one case, and the average diameter of the stoma, measured at the time of autopsy, was 2.5 cm.

The transference of secretions from one animal to its partner could occur by means of a collateral vascular circulation at the site of anastomosis, or by serous absorption of the substance from the peritoneal secretions. Three cubic centimeters of methylene blue were injected into the jugular vein of the castrated male, but the dye could not be detected in the opposite animal. This precludes the possibility of vascular anastomosis. Three cubic centimeters of a 50 per cent solution of glucose was injected into the femoral vein of one animal, and in two minutes a pronounced hyperglycemia was produced in its mate. Glucose is highly diffusible and had passed from the blood stream of the injected rat into its peritoneal fluid and was absorbed by the peritoneum of the opposite animal. This demonstrates that there is a physiological transmission of substance between the parabiotic mates.

These pseudo-Siamese twins live together in perfect harmony without any disturbance in their normal functions. If two adult female rats are joined together, both animals have regular estrogenic cycles. If two female rats are

twinned just after impregnation, they have a normal period of gestation, and give birth to healthy normal-sized litters. If this parabiotic union disturbed the functions of the reproductive organs one might expect the pregnant animals to abort, but such was not our experience.

Seven pairs of normal male rats were joined together, and the animals were sacrificed at varying intervals from one to eight weeks after their junction. There was no change in size, weight or microscopical appearance of the pituitary gland, prostate or seminal vesicles when compared with a single control.

Castrated male rats were twinned with normal males. The prostate and seminal vesicles of the castrate become small and atrophic, and the pituitary increased in size. In the normal partner the testes, prostate and seminal vesicles were hypertrophied, but the pituitary gland remained normal. If the rats were permitted to live for thirty days, the prostate was increased both in size and weight from 300 to 500 per cent. The gland was firm and solid and had a preponderance of glandular tissue; however, the prostatic enlargement was uniform. It required ten days for any changes to become evident, but from then on the hyperplasia was very rapid.

What physiological change can account for this enlargement of the prostate in the normal male? After obliteration of the gonads in the castrated male, the hypophysis is increased in size and function. The excessive prehypophyseal hormone passed from the castrated animal over into its normal partner and caused the testes to secrete an excess of the sex hormone which resulted in hypertrophy of the prostate. That the hypophysis of a castrated male is hyperfunctioning can be demonstrated by twinning a castrate with a normal female. The pituitary secretion passed into the female, stimulated the ovaries and produced a protracted estrous cycle and enormous hyperplasia of the horns of the uterus and the vagina. Similar results were obtained by injecting anterior pituitary extract directly into a normal female.

There are two apparent explanations as to why the hypophysis of a castrated animal becomes hyperfunctioning. (1) When the gonads are present they utilize the pituitary secretion, but when absent the unused hormone accumulates in the blood stream; or (2) the testes may exert an inhibitory influence on the pituitary gland and in the absence of this limiting factor, the pituitary becomes overactive. The functional activity of the pituitary gland can be determined by transplanting the gland to a normal animal, and by such a technic, Martins demonstrated that the pituitary of a castrated animal is hyperfunctioning and concludes that the testes exert an inhibitory influence on the rate of pituitary activity.

Thus, by merely altering the endocrine system, so as to cause hyperfunction of the pituitary gland and to permit the hormone to pass into a normal rat, prostatic enlargement has been obtained. No drugs, chemicals or medicaments have been injected. This shows that hypertrophy of the prostate is a physiological reaction, and that the enlargement seen in elderly men may be but an expression of a functional disturbance of the endocrine system. Any condition which stimulates the pituitary gland and the gonads to elaborate an excessive amount of the male sex hormone may result in physiological prostatic hypertrophy.

If this theory is correct, patients having enlargement of the prostate should have a greater concentration of sex hormone in their blood stream and urine than normal individuals. After considerable work, we have developed accurate methods for assaying the amount of sex hormone found in the urine, blood and spinal fluid. The average concentration of the hormone for various age groups and in different diseases has been determined in a series of patients suffering from prostatic enlargement. There was much greater concentration of sex hormone in the blood and more excretion by the kidneys than in normal patients.

From a consideration of these results, it would seem that prostatic enlargement is a physiological mechanical effect due to hyperactivity of the testes.

Dual Endocrine Function of the Testes

It is a well-recognized fact that the ovaries secrete several hormones and it seems reasonable that their male analogue, the testes, should elaborate more than one secretion. "Androtin," the so-called male sex hormone found in urine, is made by the interstitial cells of the gonads and is comparable physiologically and chemically to theelin, which is formed by the ovaries. Dr. D. R. McCullagh in our Department of Biochemistry, has been interested in the secondary functions of the gonads and has made the following observations.[34]

In our previous experiments we demonstrated that castration produces atrophy of the seminal vesicles and prostate, and an increase in the size of the pituitary and adrenal glands. If the male sex hormone is administered to a castrated rat, the atrophic seminal vesicles and prostate regenerate and even become hyperplastic, but the pituitary and adrenals remain in their recently acquired hyperplastic state. This indicates that the fat-soluble hormone found in urine can prevent atrophy of the secondary sex organs, but does not contain the hormone which apparently regulates the function of the pituitary gland. After the injection of aqueous extracts of rat testes into castrated males, the prostate and seminal vesicles become atrophic, but the pituitary did not become hyperfunctional (Martins and Rocha[33]). Evidently this aqueous extract sup-

plied a substance which inhibited the hyperfunction of the pituitary gland but did not contain the hormone required for development of the prostate.

The interstitial cells of the testes secrete a fat-soluble hormone which regulates the male generative organs, and experimental evidence indicates that the germinal epithelium inhibits the hyperfunction of the pituitary gland. Thus it appears that the testicle is secreting two hormones. An intensive study of these two hormones is now in progress.

If our contention that the germinal epithelium of the testes secretes a substance which inhibits overactivity of the pituitary gland be true, then it has a definite clinical application. In men, senescence produces degenerative changes in the germinal epithelium and a retardation of spermatogenesis, both of which indicate diminished functional activity of these cells, as a result of which there would be a smaller amount of pituitary inhibitory secretion and the hypophysis in turn would increase in size and become hyperfunctional, and would stimulate the interstitial cells of the gonads to elaborate the excess of the male sex hormone, resulting in prostatic hypertrophy.

These experiments indicate two ways by which hypertrophy of the secondary sex organs may be prevented: first, by inhibiting the influence of the anterior lobe of the hypophysis; and secondly, by inhibiting the influence of the gonads. From a clinical point of view, the first is at present rather difficult of accomplishment unless a satisfactory and safe inhibiting hormone can be found. I am hopeful this may be done. As to the second procedure, much can be accomplished by this means and we have considerable clinical evidence to substantiate this.

Clinical evidence of the effect of controlling the testicular secretions is illustrated by the findings in the examination of a group of eunuchs who were castrated for various pathological conditions. Dr. E. Perry McCullagh, of the Cleveland Clinic, made a very complete study of these eunuchs which included basal metabolism tests, check of the male hormone, etc. In no instance could any male sex hormone be demonstrated and in every case the prostate was small and atrophic. In a case of extensive epithelioma of the penis, I removed the external genitalia, the penis and gonads, and transplanted the urethra into the perineum. I also removed the inguinal glands. At the time of operation this patient had quite a large prostate and difficulty in urination. More than three years have passed since the operation and not only has there been no recurrence of this growth but his prostate has become small and atrophic and the urinary symptoms have disappeared.

The effect of castration has been known for a long time and in the early nineties was practiced rather extensively, Dr. J. W. White[36], of Philadelphia, being the principal advocate of this procedure but his mortality rate was high and the procedure was never received with much enthusiasm although numerous cases have been reported.

In 1897, Sir Robert Jones[37] of Liverpool reported an interesting case, that of a man 67 years of age, who when he saw him was suffering from almost complete urinary obstruction. The bladder was distended to above the umbilicus, the urine was alkaline, fetid, loaded with mucus and contained pus and the prostate which was as "large as a Newtown pippin," presented a marked convex protrusion in the rectum, and was hard and unyielding and painful to the touch. The scrotum was covered by herpes. For four months every effort was made to cure the herpes and to keep the bladder clean and empty but without any improvement except in the herpetic condition. Both testes were then removed and the patient made an uneventful recovery. Two weeks after the operation the prostate had sensibly diminished in hardness, there was less pain and the urine was less fetid and purulent. Six weeks later the patient was able to dispense with the catheter. A year later the prostate was reduced in size "by a good half". The patient could retain his urine for four hours, there was hardly any residual urine and the bladder contractility was assured. The patient himself said, "I'm a young man, free from pain, strong and active." Jones reports three other cases on the basis of the results of which he states, "My experience, therefore, of castration in enlarged prostate, judged in the light and promise of four cases, is distinctly a happy one, and should, I venture to think, encourage us in more frequent recourse to it."

Having demonstrated both experimentally and clinically the effect of putting the interstitial cells of the testicles out of commission, we have tried methods other than castration for accomplishing the same results. We have shown experimentally that the results of castration can be obtained by ischemia, that is, by depriving the testicle of its main blood supply. We decided to try this clinically. The main artery to the testicle is the internal spermatic, a branch of the aorta, which is given off just below the renal vessels. The other arteries supplying the testicle are the external spermatic, a branch of the inferior epigastric, and the deferential which follows the vas closely. In doing herniorrhaphies for direct inguinal hernias, I have repeatedly divided this entire cord and atrophy of the testicle on that side followed in course of time but in no instance was there sloughing. I decided to try this procedure clinically in cases of prostatic enlargement. In a limited number of cases, I have divided the entire cord. In two instances sloughing followed and I had to re-

move one testicle in one case and both in another. Since then I have divided only the internal spermatic and deferential arteries with the vas. No sloughing has followed. In a few of these cases the reduction of the gland has been most striking. I do not intend to say that this technique should be adopted, but I do feel that hypertrophy of the prostate can be reduced by attacking the structures which are responsible for the condition and that the procedure should be less hazardous than prostatectomy. We now treat most of the patients who come to us with prostatic obstruction by making a transurethral resection and if the lateral lobes are very large by ligating the main blood supply to the testicle. The results thus far have been extremely satisfactory. The mortality is low and the economic loss greatly lessened, a most important factor at the present time. We are now trying experimentally to see if we can accomplish the same result by injecting substances directly into the testes. We shall know more about this later. I present this experimental and clinical report for your consideration and criticism with the hope that it may supply a lead for a simpler method for the prevention and alleviation of a condition which is so prevalent in older men.

REFERENCES

1 Crile, George: Personal communication.
2 Leriche, R., and Jung, A.: Treatment of scleroderma by parathyroidectomy. Bull. et mém. Soc. Nat. de Chirurgie. 57:609 (May 9) 1931. Abstract, J. A. M. A. 97:355 (Aug. 1) 1931.
3 Hammett: Cited by Riddle, O.: Factors in the development of sex and secondary sexual characteristics. Physiol. Rev. 11:63-106, 1931.
4 Hatai: Cited by Riddle, ref. 3.
5 Andersen, D. H.: The relationship between the thymus and reproduction. Physiol. Rev. 12:1-22 (Jan.) 1932.
6 Soli: Cited by Andersen, ref. 5.
7 Hewer: Cited by Andersen, ref. 5.
8 Gudernatsch: Cited by Andersen, ref. 5.
9 Romeis: Cited by Andersen, ref. 5.
10 Rogoff and Stewart: Cited by Britton, S. W.: Adrenal insufficiency and related considerations. Physiol. Rev. 10:617-682, 1930.
11 Mulon: Cited by Britton, ref. 10.
12 Corey, E. L., and Britton, S. W.: The induction of precocious sexual maturity by cortico-adrenal extract. Am. J. Physiol. 99:33 (Dec.) 1931.
13 Klein, O.: Der Einfluss der Nebennierenrinde auf die Entwicklung der männlichen Geschlechtsorgane. Endokrinologie. 9:401-413 (Dec.) 1931.
14 Swingle, W. W., and Pfiffner, J. J.: An aqueous extract of the suprarenal cortex which preserves the life of adrenalectomized cats. Anat. Record. 45:244-245, 1930.
15 Hartman, F. A.; Brownell, K. A., and Hartman, W. E.: A further study of the hormone of the adrenal cortex. Am. J. Physiol. 95:670-680 (Dec.) 1930.
16 Foa, Horrax, et al.: Cited by Barker, Lewellys, F.: Endocrinology and Metabolism. New York, D. Appleton and Co. Vol. 2, 1922.
17 Foa, Horrax, et al.: Cited by Sharpey-Schafer, Sir E.: The endocrine glands. London, Longmans, Green and Co., Ltd., 1924.
18 Beach and Hulles: Cited by Sharpey-Schafer, ref. 17.
19 Smith, P. E., and Engle, E. T.: Experimental evidence regarding the rôle of anterior pituitary in development and regulation of genital system. Am. J. Anat. 40:159-217 (Nov.) 1927.
20 Lawless, J. J.: Effects of castration leaving epididymis intact in rat. Proc. Soc. Exper. Biol. & Med. 29:232 (Nov.) 1931.
21 Serralach and Pares: Cited by Barker, ref. 16.
22 DuBois and Boudet: Cited by Barker, ref. 16 .
23 Collip, J. B.: Pressor substance obtained from prostate gland of bull. Tr. Roy. Soc. Canada. (Sect. V. Biol. sc.) 23:165-168 (May) 1929.
24 Aron, M.: Sur le conditionnement des caractères sexuels secondaires chez les batraciens urodèles. Compt. rend. Soc. de biol. 85:482-484, 1921.
25 Bouin, P.: Neue Untersuchungen über die endokrine Drüse des Testikels. Endokrinologie. 9:1-7 (July) 1931.
26 Bascom: Cited by Riddle, ref. 3.
27 Moore, et al.: Cited by Riddle, ref. 3.
28 Lillie, F. R.: The theory of the free-martin. Science. 43:611-613 (Apr. 28) 1916.
29 Moore, C. R.: A critique of sex hormone antagonism. Proc. Second Internat. Cong. Sex Research, (1930). Edinburgh, Oliver and Boyd, pp. 293-303, 1931.
30 Pézard, A.: Secondary sexual characteristics and endocrinology. Endocrinology. 4:527 (Oct.-Dec.) 1920.
31 McCullagh, D. R.; Cuyler, W. K., and Frawley, J. T.: The origin of comb-growth promoting substance in urine. Trans. Roy. Soc. Canada. Sect. V, 183-192, 1932.
32 Lower, W. E., and Hicken, N. F.: An experimental research by parabiosis, showing the hypophyseal-gonadal influence on the growth and development of the prostate gland. J. Urol. 28:601-606 (Nov.) 1932.
33 Martins, T., and Rocha, A.: The regulation of hypophysis by the testicle, and some problems of sexual dynamics (experiments with parabiotic rats). Endocrinology. 15:421-434 (Sept.-Oct.) 1931.
34 McCullagh, D. R.: Dual endocrine activity of the testes. Science. 76:19-20 (July 1) 1932.
35 McCullagh, E. P.; McCullagh, D. R., and Hicken, N. F.: Diagnosis and treatment of hypogonadism in the male. Endocrinology. 17:49-63 (Jan.-Feb.) 1933.
36 White, J. W.: The present position of the surgery of the hypertrophied prostate. Ann. Surg. 18:152-188, 1893.
37 Jones, R.: Castration in enlargement of the prostate. Correspondence. Ann. Surg. 25:381-384, 1897.

Discussion

Dr. G. G. Smith: A good many of us are too old to have learned a great deal about hormones and vitamines and that sort of thing when we were in the medical school and still not old enough to remember the days of castration for hypertrophied prostate. I have heard Dr. Cabot speak of some of the experiences in those days and apparently, according to the stories, a great many who were castrated went crazy. It does not seem as if that really would be due to the castration as we know it now, but they probably were uremic and had other conditions which were not recognized then but which we would recognize today. I think it is difficult to discuss a paper such as Dr. Lower's because this work is so new to all of us.

Dr. J. H. Cunningham: This presentation of Dr. Lower's is a very stimulating subject in more ways than one. Of course it is more a research in the field of pure science than even applied science at present so we as clinicians must wait for the practical features to be applied. It is from just such research work as this, however, that our basic advancement must come and it is a matter of much appreciation that one active in clinical work should father such research as Dr. Lower is doing. This line of research may throw light upon the matter of longevity which basically is probably dependent upon a biological clinical balance. As I understand this piece of research it may be considered as a step beyond the work upon which the mendelian theory is based.

I want to thank Dr. Lower for bringing his problem to us and, while unable to more than applaud his endeavor, this I do with much appreciation.

Dr. B. D. Wetherell: If this is a diffusion, why does not the prostate of the castrated animal later become enlarged in its two lobes? Why doesn't the diffusion retroact and enlarge

the prostate in the castrated animal through the peritoneal cavity?

DR. P. N. PAPAS: I would like to ask if this is a physiological condition, why we do not find the same condition among Chinamen where prostatic hypertrophy is practically unknown. It seems, however, to be better known in the civilized and European countries.

DR. S. N. VOSE: I would like to ask Dr. Lower what changes he has observed, if any, in the criteria which are commonly found in the endocrine glands such as basal metabolism in these castrated men.

DR. R. F. O'NEIL: I would like to add my thanks and appreciation to Dr. Lower. As a matter of record, when I was a house officer in the Massachusetts General Hospital in 1907, I saw in one morning three castrations for hypertrophied prostate on three patients with bladder symptoms. I do not remember that there were any undue nervous or other effects, but I did hear of one case done on another service that had a severe mental upset which was probably uremia, as Dr. Smith suggests.

DR. F. H. COLBY: I would like to ask Dr. Lower if castration breaks the chain between the hypophysis, testicle and prostate, why in the old days, when castration was fairly commonly used for prostatic hypertrophy, it apparently had no results.

DR. ARTHUR CHUTE: I cannot discuss Dr. Lower's paper intelligently but I want to express my admiration for a man who is perhaps the most expert genito-urinary operator that we have and yet who finds time and patience to carry out this wonderful piece of investigation.

DR. VINCENT VERMOOTEN: Dr. Jenkins has asked me to mention one of his cases in connection with this, chiefly because he did not hear Dr. Lower's entire discussion. He had a patient who came to the hospital with a nonprotein nitrogen of 120 and a very large prostate, with acute retention of urine. He was put on inlying catheter drainage. After about two months of drainage, the patient was unable to void, his prostate was still about the same size so that the edema and general congestion from the enlargement had not subsided enough to do him a great deal of good. His nonprotein nitrogen remained up over 100, phthalein excretion about two per cent in two hours.

Having read Dr. Lower's articles and having looked up some of the earlier work in connection with castration, he advised the patient that he thought it would be a worth-while effort if he were willing to submit to castration (a very much less serious operation) with the hope that possibly he might get some benefit from it. The castration was done under a local anesthetic, the patient had a very smooth convalescence, and he was kept on catheter drainage for about two months longer. At intervals of about two weeks, after the first three weeks, we removed his catheter but at the end of a second two months he was still unable to void, and his prostate on rectal examination was still just as large, and unfortunately nonprotein nitrogen and phthalein secretion, etc., were still at the same stage. He was then advised to have a prostatectomy in spite of what he had gone through. We did a perineal prostatectomy and he recovered entirely. The gland removed was identical with the type of tissue we normally removed from patients who have what is known as benign hypertrophy of the prostate.

What occurred to me in connection with that was, is the effect that Dr. Lower obtains with his experimental work the result of a true hypertrophy of the prostate, and is the type of condition we normally look upon as a benign enlargement of the prostate, a true hypertrophy which should respond the way in which hypertrophy responds in his experimental work, or is the hypertrophy, as many people claim, not an hypertrophy at all but a true new growth or adenoma and, if so, should the adenoma respond the same way as a true hypertrophy responds?

In connection with this, since Dr. Lower expresses no opinion in regard to whether there is any relation between these conditions, or whether there is any way of differentiating experimental hypertrophy and the type of encapsulated tumor, we remove and call a benign hypertrophy or an encapsulated area of hyperplasia. Are these conditions the same type of thing and if not would you expect the same result with the "benign hypertrophy" as you would with a true hypertrophy which you apparently get in your experimental work?

DR. E. J. O'BRIEN: I want to reiterate what Dr. Chute said, but if I understood Dr. Lower correctly he has come to the conclusion that the prostate has practically no internal secretion. I wonder if he has any new ideas. Quite frequently, following prostatectomy, we see cases of so-called psychosis. I wonder if he has any new thought on that particular angle.

DR. W. E. LOWER: In the early cases of castration for prostatic obstruction, the mortality rate was very high. However, in many instances, the relief of obstruction was striking. It is doubtful that castration offers much hope of benefit in patients with fibrous prostates, but in those with large, soft glands, castration or testicular ischemia produced by ligation of the main blood supply causes marked decrease in the size of the prostate and disappearance of

obstructive symptoms. In cases of acute retention, this method does not afford quick relief. In such cases, if possible, we do some type of resection of the obstructive part of the prostate, and ligate the blood supply to the testicle, in an effort to reduce the hypertrophy in the remainder of the prostate gland.

The psychosis which sometimes follows castration cannot be attributed to disturbance of any internal secretion from the prostate. for the consensus of opinion is that this gland has no such internal secretion.

The question as to why, in parabiotic animals, the testicular hormone from the normal rat does not seem to influence the endocrine organs of the castrated animal is very pertinent. This we cannot explain adequately, but it may be due to the dual nature of the testicular secretion. The one hormone is soluble in lipoids and the other is soluble in water, and there probably is a difference in the size of the molecules of these two substances, which might explain why no reaction in the opposite direction was apparent in these experimental animals.

As to the infrequency of prostatic enlargement among Mongolians, I do not know the answer. White persons seem the most susceptible to this senescent pathologic change, for some reason thus far not explained, although habits and diet may have something to do with it.

In our experience, the basal metabolism in eunuchs is low.

These investigations are being carried out in the research department of our clinic by a group of younger men. We present to them the problems in which we are interested, and then try to make some clinical application of their findings. I am hoping that the possibilities of this work will be investigated further, and your interest, especially, will be appreciated.

It has been a great pleasure to be with you on your twenty-fifth anniversary.

THE TREATMENT OF CUTANEOUS MALIGNANT NEOPLASMS*

GEORGE M. MACKEE, M.D.

There is no certain cure for metastatic cancer after the affection has become invasive, therefore, the mortality of cancer is high. It is the aim of the medical profession and especially of those physicians who are particularly interested in the subject, to lessen the incidence and mortality of cancer. At the present moment the best way to accomplish this is to diagnose and completely destroy a malignant growth before it has become invasive and before metastasis has occurred. Such a desirable objective is difficult to attain in the case of internal cancer. It should, however, be possible of attainment in the case of cancer of the skin and orificial mucous membranes. Malignant neoplasms of these structures are common. It is obvious, therefore, that if all or most of the cutaneous cancers were recognized and destroyed while still local, there would be a very substantial diminution in the mortality of the disease. Even more than this can be accomplished. It is possible to recognize and destroy most of the cutaneous conditions that may lead to cancer. The well-trained dermatologist is able to satisfy these requirements, but comparatively few persons seek the advice of a dermatologist for these conditions. Most of them first consult their family medical adviser as they should do. Too often the general physician fails to recognize a dangerous lesion or even to suspect the danger until the disease is beyond control, or he may suspect the true nature of the lesion but apply inadequate treatment. It seems advisable to urge more and better undergraduate and postgraduate medical instruction in this subject. In addition, the various seminars given under the auspices of state and county medical societies, and the programs of the many smaller medical societies, should frequently include illustrated lectures on cutaneous cancer and the cutaneous conditions that are potentially dangerous.

*Presented at the Seventeenth Annual Meeting of the American Radium Society, May 9, 1932; published in *The American Journal of Roentgenology and Radium Therapy*, December, 1932, and reprinted in part in the *Bulletin of the American Society for the Control of Cancer*.

MOTHER'S DAY

"Make Motherhood Safe for Mothers" is to be the cry of the mothers of America on Mother's Day, May fourteenth. Plans have been made by women's clubs and civic organizations from coast to coast to devote the week just preceding Mother's Day to crystallizing public opinion on the vital need of improving maternity care. "At least half of the 16,000 annual deaths in maternity are preventable, and ought to be prevented," is the claim of the Maternity Center Association of New York City, which is sponsoring the movement.

Mrs. Franklin D. Roosevelt will speak at a meeting to be held in New York, May twelfth. Others to attend are Surgeon-General Hugh S. Cumming, Grace Abbott, Chief of the Children's Bureau, Thomas Parran, Jr., Health Commissioner of New York State, Miss Mabel Choate, Mrs. E. Marshall Field, Miss Frances Perkins, Mrs. Kermit Roosevelt and Mrs. John Sloane. Outstanding physicians are to be present and explain how the high maternal death rate may be reduced.

Similar meetings are to be held throughout the country. Women's clubs everywhere have been urged to observe Mother's Day in this manner by

(Continued on Page 903)

BICORNATE UTERUS WITH REPORT OF AN UNUSUAL CASE

BY GEORGE ALBERT MOORE, M.D.*

FALLS[1] has estimated the occurrence of bicornate uterus in pregnant women as 1%. Kimura's[2] statistics showed the incidence of this condition to be 0.14% among gynecological cases. Johnson[3] reported seven cases, or 0.6% occurring in 1156 gynecological cases.

During the decade 1919-1929 one hundred and thirty-two cases of bicornate uterus were reported in the United States. While the condition is not one of extreme rarity, its occurrence is sufficiently unusual to lend interest to the present report.

Conclusive proof of the causative factors of bicornate uterus is lacking. It is obviously difficult to determine the priority of existence of embryonic anomalies found in conjunction with this condition.

A brief consideration of the embryology of the female generative organs is helpful in a review of the possible causes of bicornate uterus. When

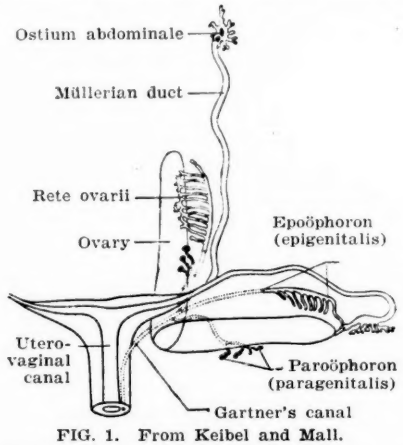
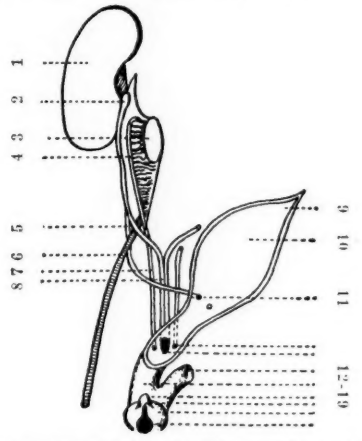


FIG. 1. From Keibel and Mall.

the embryo has attained about 13 mm. development, the urogenital fold is formed in the mesoderm at the level of the third thoracic segment. As this fold extends in a caudal direction, two cords on each side of the median line develop from it, known as the Mullerian and Wolffian ducts.

During the second embryonic month the caudal portion of the Mullerian ducts fuse to form the uterovaginal canal. From the uterovaginal canal the vagina, cervix and lower segment of the uterus are developed and from the tuba or cephalad portions of the unfused ducts the body of the uterus is formed. See figure 1 from Keibel and Mall[4] and figures 2 and 3 from Jordan and Kindred[5].

From a study of the foregoing, the possible developmental anomalies are quite apparent. These are divided into two groups by Keibel and Mall, but both groups occur frequently in the same individual: 1. Anomalies in the vagina and cervix. 2. Anomalies in the uterus. In the first group are the cases of absence of vagina, atresia of vagina or vaginal "pockets," atresia or rudimentary cervices, double vagina and cervix or vaginal or cervical septa. In the second group are the rudimentary uteri, accessory



Diagrams Illustrating the Metamorphoses of the Indifferent (A) and Female (C) Systems.

FIG. 2. From Jordan and Kindred.

1, Kidney; 2, Müllerian duct; 3, Genital gland; 4, Mesonephros; 5, Ureter; 6, Inguinal ligament; 7, Mesonephric duct; 8, Müllerian duct; 9, Apex of bladder; 10, Bladder; 11, Opening of ureter; 12, Opening of mesonephric duct; 13, Opening of Müllerian duct; 14, Rectum; 15, Urogenital sinus; 16, Cloaca; 17, Genital tubercle; 18, Genital ridge; 19, Opening of cloaca.

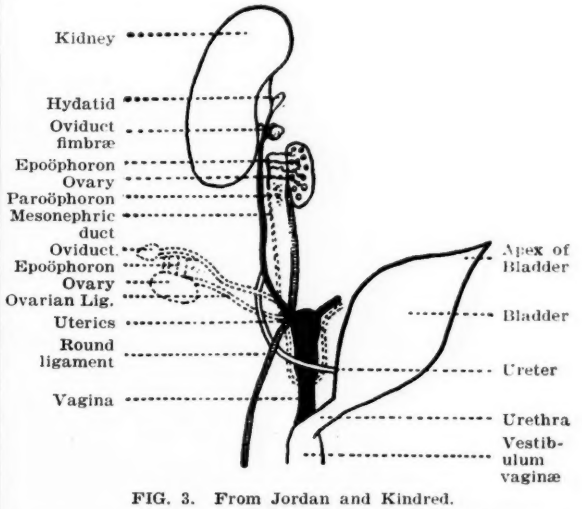


FIG. 3. From Jordan and Kindred.

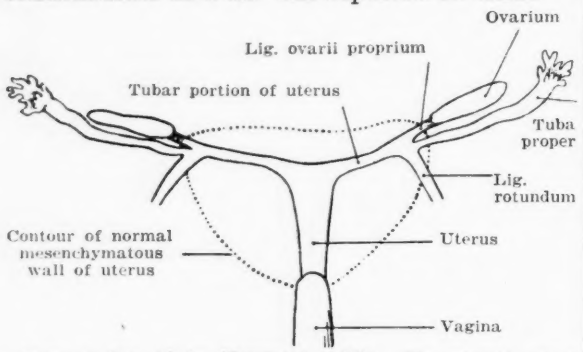
uteri, rudimentary horns without uterine cavity or with atresia of the canal and hematometra, also the septate or bicornate uterus and uterus didelphys.

Congenital anomalies which have been considered causative factors of bicornate uterus in the past are the following 1. Hydronephrosis. 2. Distention of the bladder and rectum. 3. Umbilical hernia and cleft pelvis. 4. Fetal peritonitis. 5. Rectovesical ligament. 6. Shrinkage

*Moore—Surgeon, Moore Hospital, Brockton. For record and address of author see "This Week's Issue," page 911.

of the round ligaments. 7. Too great breadth of the pelvis. 8. Persistence and separation of mesonephric ducts. 9. Congenital tumors.

Keibel and Mall state that shrinkage of the round ligaments, too great breadth of the pelvis and persistence and separation of the mesonephric ducts are probably frequent causes of bicornate uterus. Congenital tumors deserve consideration as Pick[6] has reported 30 cases.



Copy of Fig. 17 by Kussmaul (1859). The normal extent of the mesenchymatous wall of the uterus is indicated by a dotted line on the figure of the uterus rudimentarius solidus.

FIG. 4. From Keibel and Mall.

The presence of a vaginal septum is suggestive of other anomalies of the generative tract. A double vagina and cervix are invariably accompanied by a bicornate uterus. (Kliman and Manley; Keibel and Mall.) The uterus may be bilobed with a cleft between the lobes or the horns may be widely separated as in uterus didelphys with tube and ovary attached to each horn. In any case the similarity of bicornate uterus to myomata and tubal pregnancy is confusing and preoperative diagnosis is quite unusual. Diagnosis by means of x-rays of lipiodol injection into the uterine cavities has been reported by Bryskier and Béclère[7] and other writers. This method has been employed during pregnancy without ill effect.

There appears to be considerable evidence that the occurrence of gynecological diseases is somewhat higher in cases of bicornate uterus than in the normal. Of 11 cases reported by Puddicombe[8], seven complained of dysmenorrhea. Dudley[9] cited a case of intractable dysmenorrhea relieved by hysterectomy. In Cotte's[10] case dysmenorrhea was treated by unilateral hysterectomy and evacuation of a hematometra in the other horn. Metrorrhagia occurred in five of Puddicombe's 11 cases. Bainbridge[11], Truesdale[12] and others mention irregular menstruation as a symptom. Pregnancy in one horn with regular menstruation from the nonpregnant horn has been reported.

Cases of imperforate hymen and absence of an external orifice with hematocolpos of one side of a septate vagina and bicornate uterus have been reported by Schmid[13] and others. Pelvic hematometra resulting from bleeding from a tube has been cited by Puddicombe, Cotte, Allen[14] and Sohn[15]. These conditions result from congenital atresias at different levels of the genital tract. Panhysterectomy for suppuration in the cornua and tubes and a second case of amputation of a nonpregnant horn following cesarean in the other horn were reported by Mihailesco[16]. In Allen's case the right horn was rudimentary and did not connect with the established vagina, blood and endometrial deposit had formed a carpet in the culdesac. Torsion necessitating panhysterectomy of both horns occurred in Roth's[17] case.

The purpose of conservative operations which have been devised for the treatment of the bicornate uterus has been to excise or obliterate vaginal and uterine septa. McArthur[18] reported a case of severe dysmenorrhea relieved by cutting the vaginal septum and removal of the uterine septum through a hysterotomy incision. Strassmann's[19] technic consisted in a transverse incision between uterine horns, removal of the septum and closure of the incision in the anteroposterior direction. His series consisted of 22 cases, some of whom after operation had borne living children. Rockey's[20] operation consisted in applying clamps to the vaginal septum and also to the uterine septum through the dilated os. Two normal pregnancies followed this operation in one patient. Murray[21] and Kline have reported cases in which pregnancy followed removal of the uterine septum.

Much of the literature on bicornate uterus is concerned with the complications resulting from pregnancy and those observed during labor. The most common of these is abortion. It is quite evident that the bicornate uterus is as receptive to the impregnated ovum as the normal uterus. Normal uterine development of the fetus is dependent upon increase in the musculature of the pregnant horn. For this reason the rudimentary horn in a bicornate uterus rarely if ever bears a living child. In many cases of abortion from the rudimentary horn, normal pregnancies occur in the other horn.

Asymmetrical enlargement of the uterus is the most frequent sign observed during pregnancy. In the early months the uterus may be observed lying in one side of the pelvis, in the later months it is found to be on one side of the abdomen extending up under the ribs. Fall has mentioned the frequency of the oblique position of the fetus and irregular heart sounds in the late weeks of pregnancy.

Normal delivery of living children prior to the recognition of a bicornate uterus is not uncommon. In Dannreuther's[22] series of 13 patients, there were 6 who had borne 16 living children. Cleisz and Faure[23] reported a case of 3 normal deliveries and Steinharter and Brown's[24] patient had borne 6 children. After recognition of the abnormality the majority of patients are delivered by cesarean. Of 8 cases reported by Puddicombe from the Boston Lying-in Hospital, 5 were delivered by cesarean, 2 by forceps and 1 had spontaneous miscarriage. Laudicella[25], Davies & Cellan-Jones[26], and De Lee

have cited cases of cesarean for twin pregnancy.

Rupture of the pregnant horn and torsion or incarceration of the nonpregnant horn in the pelvis are the more common abdominal emergencies occurring during pregnancy. In the past ten years 9 cases of uterine rupture during pregnancy have been reported: Humpstone[27], Brugh[28], Jones[29], Mihailesco, Cuizza[30], Puddicombe, Truesdale, Koplowitz[31] and Meyer[32]. Rupture occurred from two and one-half months' gestation to full term and all but one of the cases recovered. Symptoms of massive abdominal hemorrhage and profound shock are manifested early. Rupture of an interstitial pregnancy is probably the only other type of uterine hemorrhage producing such alarming symptoms in so short a time. In Jones's case of postpartum rupture the transverse colon became adherent to the site of rupture checking the hemorrhage. Puddicombe cited a case in which the fetus' head was forced through the uterine wall acting as a tampon.

Torsion and incarceration of the nongravid horn in the pelvis are less frequently observed than rupture. Caswell[33], Kliman and Manley[34] and Jones have reported cases in which unilateral hysterectomy for these conditions was followed by pregnancy and delivery of a healthy child by cesarean.

The case presented is without parallel in the reviewed literature in that unilateral hysterectomy for incarceration of a nonpregnant horn in the pelvis was successfully carried out without interruption of a pregnancy in the other horn.

CASE: Mrs. G. W., aged 24, referred by Dr. Buck of Randolph, Mass. August 1, 1928.

Past History: Unimportant.

Present History: Primipara. Cta. regular and normal up to May 15, 1928, when last cta. began. Since May 25, she has been nauseated and has vomited occasionally. Feels very tired and weak. During the past four days has suffered very severe pains in the lower abdomen, but has not been nauseated more than formerly and has not vomited.

Physical Examination: A well-developed and nourished woman, moderately pale. Blood pressure 120-65. Abdomen moderately distended, a tumor is felt extending about one and a half inches above the symphysis, more on the right, apparently pelvic in origin. The cervix is elongated and soft, situated in the posterior culdesac, the tumor felt above is attached to the cervix, is soft, rounded, barely filling the pelvis but situated more on the right side. In the left side of the pelvis is a very firm, tender mass the size of a goose egg, which appears to be firmly incarcerated in the pelvis by the tumor on the right. Pulse and temperature normal. Urine is normal. Leucocyte count 12500.

August 2, 1928. Operation by Dr. Moore. Six inch left paramedian suprapubic incision, uterus found divided down to the cervix (uterus didelphys). A septum extends from the posterior wall of the urinary bladder between the halves of the uterus and is attached to the rectosigmoid. The right half of the uterus is about four inches in diameter by about seven inches long, the top of which is just above the pelvic brim. It is congested, soft and apparently pregnant about three to four months. The right tube and ovary are attached to the upper, outer side of this portion of the uterus. In the left side of the pelvis firmly wedged in by the enlarged right half of the uterus is a rather soft engorged purplish mass about three and a half by two inches attached to the right half of the uterus at the lower segment. On the upper, outer surface of this tumor the left tube and ovary are attached.

The left horn with the tube and ovary was excised after ligating the broad ligament and coring out the cervix. The raw surfaces were covered over and the wound closed in the usual way. See figure 5. The patient had frequent crampy pains for

FIG. 5. Left horn of uterus with tube and ovary removed at operation August 2, 1928.

about four days after the operation and a slight vaginal hemorrhage, after which she had an uneventful convalescence and was discharged to her home August 21, 1928.

February 2, 1928, the patient was readmitted in labor with a history that her pregnancy had been normal since her discharge from the hospital up to about one week ago, when she had swelling of her feet and legs, "spots" before her eyes and a trace of albumen in her urine. These symptoms cleared up under appropriate treatment. Blood Pressure 125-65. The uterus filled the right side of the abdomen and extended some three or four inches to the left of the median line below the umbilicus as shown in figure 6. There was a slight, bloody vaginal dis-

FIG. 6. Patient at term, showing left paramedian scar and definite asymmetry of abdomen, the tumor situated in the right side of the abdomen.

charge. On rectal examination the cervix was not dilated; urine normal. No swelling of feet or legs.

Operation: One hour after admission, typical cesarean, with a high incision. The uterine musculature over the inner half was extremely thin so that it seemed probable that rupture would have occurred if labor had been allowed to continue. The baby was apparently a few weeks premature, breech presentation, weight 6¾ pounds. The patient had an uneventful convalescence and the mother and baby were discharged from the hospital February 17, 1929.

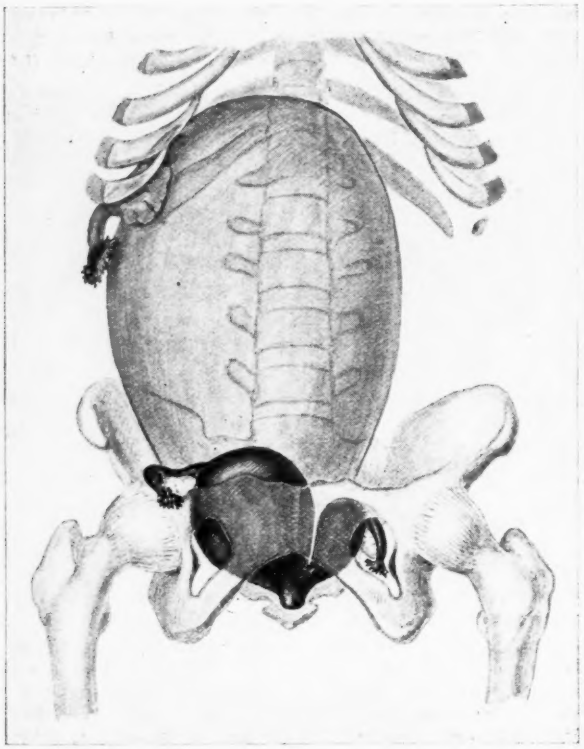


FIG. 7. Representation of uterus at first and second operations.

The case is here presented on account of the rarity of a bicornate uterus but more especially since a review of the literature for the past ten years reveals no case of unilateral hysterectomy of a bicornate uterus in the presence of pregnancy in the other horn, with continuance of the pregnancy to term.

The patient was examined in the office several weeks after her discharge from the hospital, a vaginal septum was then found and a double cervix. Had this been found at the first examination, a correct diagnosis of the pelvic condition should have been made.

REFERENCES

1 Falls, F. H.: A study of pregnancy and parturition in primiparae with bicornuate uteri. Am. J. Obst. & Gynec. 15: 399, 1928.

2 Kimura, S.: Clinical observation of uterus bicornis in pregnancy and labour. Jap. J. Obst. & Gynec. 13: 154 (Apr.) 1930.

3 Johnson, W. O.: Discussion. Kentucky M. J. 26: 196 (Apr.) 1928.

4 Keibel, Franz, and Mall, Franklin P.: Manual of Human Embryology. Philadelphia, J. B. Lippincott Co. 2: 911-929, 1912.

5 Jordan, H. E., and Kindred, J. E.: Embryology. New York, D. Appleton & Co., 1926. Pp. 265-311.

6 Pick: Cited by Keibel and Mall. (See Reference 4.) P. 934.

7 Bryskier and Béclère, C.: Un cas d'utérus double. Bull. Soc. d'obst. et de Gynéc. 17: 223 (Mar.) 1928.

8 Puddicombe, John F.: Some uterine anomalies due to variations in the fusion of the muellerian ducts. Surg. Gynec. Obst. 49: 799 (Dec.) 1929.

9 Dudley: Principles and Practice of Gynecology. Philadelphia, Lea Bros. & Co. P. 449.

10 Cotte, M. G.: Dysménorrhée et stérilité liées à une malformation utérine. Lyon chir. 27: 393, 1930.

11 Bainbridge, W. S.: Duplex uterus with multiple pregnancy. Report of cases. Am. J. Obst. & Gynec. 7: 285, 1924.

12 Truesdale, P. E.: Rupture of a pregnant horn of a bicornate uterus. Tr. New Eng. S. Soc. 11: 169, 1928.

13 Schmid, H. H.: Haematokolpos lateralis. Monatschr. f. Geburtsh. u. Gynäk. 80: 283, 1928.

14 Allen, Edward: Regurgitation of menstrual blood from one of double uteri caused by congenital atresia. Am. J. Obst. & Gynec. 17: 868, 1929.

15 Sohn, A.: Operation in case of unilateral hematometra in uterus bicornis duplex. Zentralbl. f. Gynäk. 49: 2890, 1925.

16 Mihailesco, T.: Les malformations utérines et leurs complications (6 cas personnels). Gynéc. et Obst. 15: 205-214 (Mar.) 1927.

17 Roth, Hugo: Torsion des corps d'un utérus didelphe autour de leur axe longitudinale, consécutive à une péritonite adhésive, avec choc péritonéal. Bull. Soc. d'obst. et de gynéc. de Paris. (Feb.) 1928. P. 144.

18 McArthur, A. N.: Operation for uterus bicornate. M. J. Australia. 2: 510 (Dec. 21) 1918.

19 Strassmann, P.: Bifid uterus and extension of operation for uniting the two horns. Zentralbl. f. Gynak. 50: 1051, 1926.

20 Rockey, A. E.: Double uterus and vagina with a new bloodless operation for the correction of the deformity. Ann. Surg. 63: 615 (May) 1916.

21 Murray, H. Leith: Two cases of utriculoplasty for uterus bicornis unicollis (symmetricus) followed by repeated pregnancies. J. Obst. & Gynec. Brit. Emp. 33: 289, 1926.

22 Dannreuther, W. T.: Uterus duplex unicollis. Ann. J. Obst. & Gynec. 14: 376, 1927.

23 Cleisz, L., and Faure: Hémorragie de la délivrance dans un utérus bicorne. Bull. Soc. d'obst. et de gynéc. de Paris. 24: 553, 1926.

24 Steinharter, E. C., and Brown, Samuel: Report of a case of bicornuate uterus. Am. J. Obst. & Gynec. 15: 558, 1928.

25 Laudicella, Francesco: Caso raro di gravidanza doppia in utero doppio. Arch. di ostet. e ginec. 14: 553 (Nov.) 1927.

26 Davies, J. L.: and Cellan-Jones, C. J.: A case of uterus didelphys with pregnancy. Lancet. 1: 971 (May 7) 1927.

27 Humpstone, O. Paul: Pregnancy in a rudimentary horn of the uterus. Surg. Gynec. Obst. 31: 501 (Nov.) 1920.

28 Brugh, B. F.: Uterus bicornis unicollis with rupture of the gravid horn followed by operation and recovery. W. Virginia M. J. 22: 636 (Dec.) 1926.

29 Jones, Arthur T.: Report of two cases of bicornate uterus with pregnancy: cesarean section. Am. J. Obst. & Gynec. 9: 347, 1925.

30 Cuizza, T.: Un caso di rottura d'un corno gravidico d'un utero bicorne con formazione di litopedio. Riv. d'ostet. e ginec. prat. 9: 157 (Apr.) 1927.

31 Koplowitz, Abraham: Rudimentary horn pregnancy with report of case. Am. J. Surg. 6: 75 (Jan.) 1929.

32 Meyer, Hermann: Uterusruptur bei einem Uterus bicornis unicollis. Zentralbl. f. Gynäk. 54: 1353, 1930.

33 Caswell, C. E.: Pregnancy in the remaining horn of a uterus didelphys after torsion and partial hysterectomy. Am. J. Obst. & Gynec. 11: 853, 1926.

34 Kliman, F. E., and Manley, J. R.: Congenital malformations of the uterus and vagina. Report of three cases. Minnesota Med. 12: 71 (Feb.) 1929.

HEMATOPERICARDIUM

Case Report

BY EDWARD B. BENEDICT, M.D.,* AND CHESTER M. JONES, M.D.*

BECAUSE of the rarity of the condition the following case of hematopericardium is reported:—

M. H., a fifty-year-old white English widow, graduate nurse, first consulted one of us (E. B. B.) in July, 1928, for excessive uterine bleeding of six weeks' duration. For three years the catamenia had been irregular. Pelvic examination revealed a cauliflower mass involving the cervix. Physical examination was otherwise essentially negative. Radium treatment was given at once, at the Palmer Memorial Hospital, following which convalescence was uneventful. Biopsy was reported by Dr. Shields Warren as adenocarcinoma. The patient was then examined for possible recurrence at intervals of about three months. For three years there was no evidence of recurrence, and as the patient was having typical attacks of gall-stone colic, cholecystectomy was advised and performed at the Baker Memorial Hospital in November, 1931. The gall-bladder showed a chronic cholecystitis and contained stones, one of which was impacted in the cystic duct. Exploration of the abdomen and pelvis was negative for metastases. Convalescence from this operation was also uneventful, the patient returning to work two months later. As she had not fully recovered her strength she was advised to do only part-time work, but instead she worked harder than she ever had in her life. At the same time (January, 1932) she began to notice slight swelling of the right leg which measured four centimeters more in circumference than the left leg. Two months later (March, 1932) she had an attack of influenza which kept her in bed a week. One month after that (April 7, 1932) the right leg was very definitely edematous, measuring fifty-seven centimeters at mid-thigh as compared with forty-six centimeters for the left thigh. The patient looked very worn. Supraclavicular glands on both sides were enlarged. The right labium majus was edematous, and the patient stated that the entire pubic region also became swollen at times. The apex of the vagina felt somewhat nodular on pelvic examination, and both sides of the pelvis felt a little thickened by rectal examination. A diagnosis of recurrent carcinoma was made and x-ray treatment advised. The day after the first x-ray treatment she suffered from anorexia, nausea and vomiting, and soon developed a nagging cough. Her local physician made a diagnosis of bronchitis, but as her condition grew worse it was decided to admit her again to the Baker Memorial Hospital.

On admission, April 14, 1932, the patient was obviously very ill. There was noted orthopnea of unusual degree, extreme cyanosis, and signs of fluid at both bases, especially on the right. The heart was apparently enlarged to the left. The blood pressure was 110/85. The marked edema of the right leg was again noted. The medical consultant (C. M. J.) who took charge of her at this time felt that the chest condition was probably due to metastases. Some symptomatic relief was obtained from a right thoracentesis. The appearance of the patient suggested advanced heart failure, but although pericarditis with effusion would have fitted the picture, the diagnosis could not be established by portable films or by the physical signs. Fluoroscopy was not possible because of the very grave condition of the patient. Following a second right thoracentesis, with very slight relief of the extreme orthopnea and the marked cyanosis, the patient very rapidly declined. The fluid removed from the right chest on each occasion was straw-colored, with a specific gravity of 1.015, and numerous red blood cells. No

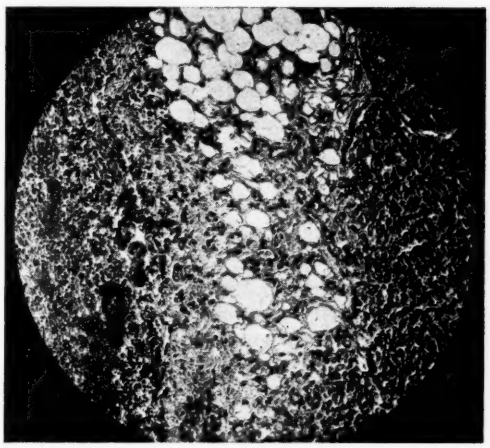


FIG. 1. Low power. Showing at the left group of cancer cells in midst of very vascular pericardial tissue. At the right, heart muscle.

cancer cells could be found in the coagulum. The temperature on admission was 98.8°, but gradually fell very much below normal so that on the last three days it was only 94.0° to 94.5°. The pulse varied from 60 to 130, and the respirations from 17 to 28. One week after admission the patient died. The clinical diagnosis was metastatic cancer of the

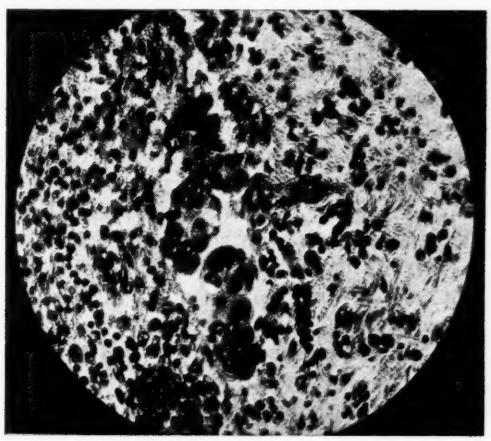


FIG. 2. High power view of cancer cells shown in figure 1.

cervix, bilateral pleural effusion, questionable pericardial effusion.

Postmortem examination by Dr. Tracy Mallory and Dr. Benjamin Castleman showed that the immediate cause of death was a large amount (1200 cc.) of a slightly thick viscid bloody fluid in the pericardial sac. The sac itself filled almost two-thirds of the chest cavity. The visceral layer of the pericardium was red and markedly coated with fibrin. There was no evidence of perforation or rupture of the heart.

*Benedict—Assistant in Surgery, Harvard Medical School and Massachusetts General Hospital. Jones—Physician, Massachusetts General Hospital. For records and addresses of authors see "This Week's Issue," page 911.

Microscopically the epicardium was thickened, congested and infiltrated with large numbers of polymorphonuclear cells and lymphocytes, and showed a superficial zone of vascular fibrosis, in the midst of which were a few deposits of fibrin. A number of small cavities lined with cuboidal epithelium were interpreted as persistent remnants of the pericardial cavity. In one area there were a few collections of large atypical polyhedral epithelial cells, one of which contained a mitotic figure. The pathological diagnosis was acute fibrinous pericarditis, metastatic carcinoma of pericardium, hematopericardium. In addition there was found recurrent carcinoma in the pelvis at the site of the cervix, metastatic carcinoma to the regional, retroperitoneal, right inguinal and tracheobronchial lymph nodes, hematohydrothorax (right, 1000 cc.; left, 400 cc.), hematoperitoneum (200 cc.), and multiple pulmonary infarcts. Pressure of malignant glands on the right iliac vein shown at autopsy confirmed our clinical opinion as to the cause of the edema of the right leg, groin and pubic region.

COMMENT

The etiology of the hematopericardium in this case was probably metastatic malignancy. Krumbhaar[1] states that "hemopericardium makes one suspicious of a neoplasm, but may also occur in tuberculous pericarditis." White[2] says that "metastases to any part of the heart from malignant disease elsewhere are usually accidental findings at postmortem examination." Vaquez and Laidlaw[3] report that "primary cancer of the heart is rare, only eight authentic cases being known," but "secondary carcinoma is seen more frequently . . . The primary tumor may be located in various organs, preferably the lungs; also the esophagus, the mediastinal glands, the stomach, and even the genitourinary organs." White[4] also says, "neoplasms, a rare cause of pericardial disease, may or may not cause an effusion. When such an effusion occurs it is usually bloody and it may contain cancer cells. Sarcoma and carcinoma are the commonest lesions of this sort, but many varieties of new growths have been found. Usually the neoplasm is metastatic . . ."

In view of the fact that a chest tap done four days before death revealed a straw-colored effusion with merely microscopic red cells, it is of interest to speculate as to the rapid appearance of grossly bloody fluid. We were unable to find any cause for the appearance of gross blood in the pleural effusion, and it is not easy to see how a small area of metastatic cancer in the pericardium can explain so large an amount of grossly bloody fluid in the pericardial sac.

REFERENCES

1 Krumbhaar, Edward B.: Pericardial disease, Nelson Loose Leaf Living Medicine, Thomas Nelson & Sons, 4:525.

2 White, Paul D.: Other etiological cardiovascular relationships, Nelson Loose Leaf Living Medicine, 4:455.

3 Vaquez, Henri, and Laidlaw, George F.: Diseases of the Heart, Philadelphia & London, W. B. Saunders Co., 1924, p. 324.

4 White, Paul D.: Heart Disease, New York, Macmillan 1931, p. 509.

TRENDS AND PROGRAMS IN MEDICAL CARE

BY MICHAEL M. DAVIS, PH.D.*

PROBLEMS and needs in medical service existed before the depression and before the Committee on the Costs of Medical Care had been thought of. It was the recognition by many physicians and some laymen of such problems as uncared-for illness, uncertain and uneven costs of care, high costs in some cases, shortage of doctors and hospitals in rural areas, overspecialization in the cities, unsatisfactory incomes of many physicians, nurses and hospitals which caused the organization of that Committee. The needs of one hundred and twenty million people who require medical service, and of more than a million persons who are concerned with furnishing it press continuously for the solution of these problems, and these pressures have been accentuated by the economic conditions of the last few years. The sweep of these pressures has evoked both study and complaints. It has also elicited action. Changes in medical service and in methods in paying for it are not merely impending — they are occurring. The country is full of significant trends and experiments.

*Davis — Director for Medical Services, Julius Rosenwald Fund, Chicago. For record and address of author see "This Week's Issue," page 911.

Last month* in Chicago, the American Hospital Association endorsed the principle of periodic payment for hospital care, the plan frequently called group hospitalization, and outlined methods and procedures for putting the principle into effect. A bulletin issued to all the chief hospitals of the United States declares:

"For several years, even before the depression, the difficulty experienced by many patients in paying for hospital service and the difficulties of hospitals in collecting patients' fees suggested the need of a practicable method of enabling patients to budget their hospital bills. The present widespread interest in group hospitalization is, therefore, not accidental or of recent or merely temporary interest; on the contrary, it reflects a fundamental social need which has been recognized for a long time.

"Group hospitalization plans have been instituted or are in contemplation in a number of cities, among them Dallas, Fort Worth, San Antonio, Houston, Shreveport, Louisville, New Orleans, Colorado Springs, Pueblo, Newark and Elizabeth, N. J., Chicago, New York City; Philadelphia, Brattleboro, Vt., St. Paul, Grinnell, Ia., and Rockford, Ill. The places mentioned are those in which non-commercialized plans have been or are being developed and do not include those in which plans have been initiated as profit-making enterprises by business promoters or 'hospitalization corporations'.

*February, 1933.

"In existing group hospitalization plans, from six to twelve dollars per year is the range of rates charged. The amount required will vary with the general cost levels of the locality, with the scope and character of the services offered (these will be influenced by local custom), with the age and occupational character of the subscribers, and according to the requirements for promotion and administration.

"Group hospitalization plans as recommended by the American Hospital Association are intended to cover hospital charges only. The arrangement of professional fees between physician and patient is to be regarded as a private matter not affected by the plan; the plan involves no change in the pre-existing normal relationship between physician and patient.

"A time limit on the length of stay of all patients in the hospital during any given illness is an actuarial requisite and is usually a three weeks' period."

Hospitals, says the Association, should "proceed with caution in the development of periodic payment plans" and should avoid allowing them to come under commercial control. Local needs, actuarial details and administrative methods should be studied carefully before taking action. In small towns with only a single hospital, the institution may proceed directly to make arrangements with groups of people who will pay an agreed sum annually. In larger places the hospitals should act coöperatively through hospital councils, or other community bodies. The American Hospital Association urges the extension of these coöperative undertakings and offers advisory services to localities in the development of group hospitalization.

The so-called "middle-rate plans" of hospital service, which are conducted by the Baker Memorial in Boston, Mt. Sinai and Sydenham Hospitals in New York, the Norton Infirmary in Louisville, and elsewhere, do not involve the principle of insurance, but are plans of hospital organization. The physicians of the hospital staff agree with the hospital administration on a schedule of moderate fees. The administration collects from the patient a single bill covering both professional and hospital charges. This does not permit the patient to budget in advance, but it does enable him to plan his obligations much more accurately. The same principle is involved in pay clinics such as the Cornell Clinic in New York and similar ones in Chicago, Boston, and elsewhere. These have shown that the cost of care for a number of illnesses can be greatly reduced through organization of service, while at the same time furnishing reasonable recompense to the physicians.

Even though the plan offered by the American Hospital Association deals with only a fraction of the whole field of medical care, it is significant that an organization of hospitals should be the first national professional agency to set forth some constructive program in this field. For a generation, hospitals in the United States have been advancing from mere emergency stations, caring for the sick poor, to a more and more central and significant place in the general scheme of medical service. Hospitals have become not merely the home of surgery and the place in which a large proportion of babies are brought into the world, but the center of educational opportunities for physicians and of facilities for the diagnosis of large numbers of ill people who never occupy a bed in the institution. Two-thirds of all the practicing physicians of the country are now associated with hospitals and clinics, and a thousand of our hospitals have already taken the significant step of supplying quarters wherein local physicians may carry on private office practice. This is one of the significant recent trends in hospital work, representing an economic use of capital investment, a recognition of the hospital's place as a medical center, and an important incentive to coördinated work among physicians.

In the best hospitals and clinics, such coördinated work is systematically organized. The evils of specialization are counteracted by an organization which makes a single physician personally responsible for each patient, pooling and coördinating the findings of laboratories and specialists, and acting as the patient's personal physician throughout.

Many of the standards required by the American College of Surgeons for the hospitals on its approved list are examples of the gradual advance of coöperative, instead of wholly individualistic work, among physicians. Innumerable steps towards the extension and improvement in group practice are being taken in hospitals and clinics throughout the country, as the result of a demand on the part of physicians themselves for more efficient professional service and more economical use of the increasing investment in buildings, equipment and personnel required by modern medicine.

Over 200 private clinics, mostly in the central west, have been organized by physicians themselves especially for group practice. These involve only two or three thousand physicians and are less significant, though more obvious, than the advancing organization within the staffs of hospitals and clinics which affect many thousands of medical men and which bring the practitioners and specialists of a locality into closer and closer relationships and coördination.

"I must record myself as out of sympathy with most of the recommendations of your report," wrote a physician to the Committee on the Costs of Medical Care, "but I must confess that we have in this locality examples of the medical centers which you describe in your report as one of the main features of group practice, since the two hospitals which serve this community furnish all the laboratory and x-ray facilities that we have and every reputable physi-

cian of this locality works in one of these institutions or the other".

Are essential personal values between physician and patient lost through organized or "group" practice? Let every patient who has consulted a round of independent specialists ask, on the other hand, whether essential personal values have not been lost already. Let every thoughtful physician ask whether the general practitioner (however fine his initial medical education) can keep up-to-date with the advance of medicine, unless he has a continuous and organized association with other physicians and with the laboratories and educational facilities of a hospital and clinic.

The leading medical educators seem convinced that specialization must be minimized in the undergraduate training of the physician and the chief national medical organizations are in process of preparing standards and lists of approved specialists in various branches. But with the average income of the specialist two and one half times that of the general practitioner, the economic incentive towards the early specialization of recent graduates seems too strong to be counteracted by external regulatory measures alone. The point of view of the family physician should indeed occupy the central place in medical practice. But is there any way of "restoring the general practitioner" unless he is part of a staff of professional men whose aim is to gain the scientific advantages of specialization while retaining the individuality of both patient and physician?

It is true that many hospitals and clinics lag painfully behind the ideal. Too many hospitals are still surgical workshops and little more. Too many seem institutionalized, uninterested in anything beyond their own four walls. Many are pitiably undeveloped in their social service. The point of view of the patient himself is often insufficiently represented in the management of hospitals. Yet despite all defects, the trend of hospitals and clinics is toward ever better professional service, not merely for "the poor," but for the public; and for wider and more coöperative relations with physicians, with public health agencies and with social work. A comparison with condifions twenty years ago shows immense advance in these respects and a survey of conditions today shows a widespread awareness of needs, and a readiness to experiment in meeting them.

Providing medical care is the physicians' problem; paying for it, the public's. In paying for medical care, the major trend has been to distribute the uneven and unpredictable costs of sickness so that they do not fall upon a family at the moment illness occurs, but are spread over a group of people and over a period of time. Four methods of group payment have been developed; the fine and ancient custom of charity; the very modern device of the sliding scale; taxation; and insurance. Private charity contributed about one hundred million dollars annually out of over three and one half billions of current expense for the care of sickness. The unpaid services of physicians, if estimated at a money value, would be much larger.

The sliding scale of medical charges is a device of good intentions. It seems to have given rise to more complaint from both physicians and patients than any other single element in the present scheme of medical service. The Committee's survey of 9,000 families over a twelve-month period showed that while the need for medical care is approximately the same irrespective of economic status, only one in seven people among the well-to-do went without some medical attention during the year, whereas the proportion was one in four among the middle class, and one in two among the poor. The happy assumption was shattered, that the sliding scale of charges succeeds in apportioning the services rendered according to the need for them. Moreover, the unevenness and inadequacy of many physicians' incomes, even before the depression, appear to be due in part to the same system of payment.

The American people have used taxation as a means of distributing certain illness costs. Almost all of the care of mental disease is now supported by taxation, as well as most of the care of tuberculosis and the major part of preventive work. General hospital care is provided in a large number of city and county hospitals and in a few state institutions. The tax-supported hospital in many of the newer communities may be the only hospital available, and is utilized by all classes. "There is a large class of persons," said Dr. Nathan Sinai in his study of the medical service in San Joaquin County, an area of 100,000 population, "who are not indigent but who might be pauperized if they had to carry the hospital and other expenses for medical care". For these the San Joaquin County Hospital cares as well as for the destitute, as do many other county institutions; and certain well-to-do patients go to the San Joaquin County Hospital. For twenty years this hospital has been the favored institution of its county. It kept all its beds full even in the prosperous year of 1929 at a time when nearly half the beds in other institutions in the county were empty.

"The custom of accepting pay patients is prevalent among the small city and county hospitals in California, North Carolina, South Carolina, Iowa, Wisconsin, Michigan, Maryland, and Pennsylvania," declare Falk and Rorem in their summary of the studies of the Committee on the Costs of Medical Care. "It has been less fully developed in the metropolitan urban areas; but for some years 'public ward' patients have

been permitted to pay part of the cost of hospitalization in the Cincinnati and Buffalo city hospitals, and in the latter, physicians attend private cases in the municipal institution." This broadening of the old charitable tradition has unfortunately taken place without recognizing the need of compensating physicians for the greatly increased time which they must devote to hospital and clinic patients.

In sparsely settled rural sections of Saskatchewan and Manitoba, our Canadian brothers have brought physicians to their communities by paying salaries out of tax funds to medical men who care for everybody in the area, a plan which seems to be satisfactory to all concerned and which the medical societies of these provinces have officially recognized. A recent commission studying the needs of rural Vermont made a somewhat similar suggestion for application to parts of that state.

Many rural areas are too thinly settled or too poor to maintain a physician and laboratory facilities, while the services of specialists, and a hospital, are still less available. By organizing the medical services for these areas in coördination with some accessible center of population, the needs might be met. A body of physicians in Iowa grappled with this problem three years ago. They had a private group clinic in an urban area of about 100,000 inhabitants and on their own initiative sent out a private practitioner of their own selection to a town of 3,000, twenty miles away from the private group clinic which they maintained.

"This general practitioner," writes C. Rufus Rorem after a recent visit, "who succeeded a physician who had retired, is paid a salary by the clinic, and engages in private practice on a fee basis. Fees are established according to the customs of the community and the patient's estimated ability to pay. Difficult cases are referred to the specialist, at the clinic offices, who either visits the general practitioner at his local office or treats the patient in the urban clinic or in a hospital.

"Since the first substation of the clinic was established three years ago, six others have been instituted in the small towns surrounding this metropolitan area. The local practitioners maintain in the offices laboratories for blood and urine tests, small stocks of standard drugs, and the usual equipment for simple examinations and treatments. Detailed case records are kept for every patient and these records are checked by the clinic specialists whenever a case is referred to them for treatment.

"All the practitioners are young men, none of them more than thirty years of age. These rural general practitioners consider their training in towns and villages as apprenticeship for transfer to larger communities and look forward to their own replacement by younger physicians. Several of the general practitioners are interested in medical specialties and have to a greater or lesser degree laid the ground work for specialization and participation in the work of the central clinic."

Of wider application, as a method of group payment for medical care, is the principle of insurance. Illness insurance is now in force on a small scale in many parts of the country, and in one or two states seems to be approaching a stage of large-scale application. In a few industries, such as mining and lumbering, and in many western railroads, employees secure most or all of their medical care through fixed weekly or monthly payments which build up a common fund from the ill and well together, out of which the expenses of medical services are met. Sometimes the payments of employees are supplemented by the employer. In a relatively few instances, such as the Endicott Johnson Shoe Company in Binghamton, New York, and the Homestake Mining Company in South Dakota, on which special reports were made by the Committee, the whole cost is directly borne by the employer, but this policy is neither practicable nor commendable for general application.

Over ten years ago, in the town of Roanoke Rapids, North Carolina, five mills and their employees set up a hospital and a plan of medical service headed by a physician of high standing in the locality. This service has come to include about 8,000 of the 12,000 people of Roanoke Rapids and has been paid for by a fixed fee of 25 cents a week from each employee and about an equal amount from the employers. In 1931, when the mills found it no longer possible to continue their payments, the employees voluntarily doubled their weekly amounts so that the service could continue without interruption. In Baton Rouge, Louisiana, the employees of the local refinery of the Standard Oil Company made arrangements with seven local physicians and subsequently developed the service so that they now possess a modern building, equipped to serve as a clinic for the group. For $3 per employee per month, complete medical service has been furnished to the membership and their families, who include about 80 per cent of the white employees of the company. In 1929 the membership reached its peak at 2,800; dropped to barely 2,000 in 1932 because of lessened employment, but a total of about 8,000 persons (members and their families) receive what qualified observers report to be excellent service.

In Los Angeles, organized groups of employees, beginning with those of the county itself, have made arrangements with the Ross-Loos Clinic, a well-established private group organization of about twenty-five physicians, owning their own building, to furnish medical service

on an annual payment basis. In three years the number of subscribers has grown steadily, now covering over 9,000 persons, who for $2 per month secure medical service at home, clinic, or hospital, complete except for nursing and dentistry. Their dependents must pay cost prices for hospitalization and medicine, but receive other service without charge. This is only one of a number of organized groups of physicians in the central and far West, with which annual payment plans have been arranged by organized groups of people.

Well-established insurance companies have long offered policies to individuals, providing specified cash payments in time of illness, which may be used to meet the expenses of medical care. These individual policies, however, cost too much to be useful to the mass of the population. Group sickness insurance, so-called, is within the financial reach of many wage workers, is furnished by several important companies, and is said to cover two million employees. But this provides only a cash benefit while the wage earner is ill, in an amount which is necessarily less than wages and which must generally be used to meet the ordinary living expenses, not those of medical care. The most promising and most economical experiments in voluntary sickness insurance are coöperative arrangements between consumers and producers of medical service, without a commercial middleman. Such an intermediary adds substantially to costs, and opens the door to exploitation of physicians and of patients.

California presents more than one significant experiment. In its railroads and other large industries, employees quite generally secure medical care on an annual payment basis. The idea of sickness insurance has become widespread enough among the people on the Pacific Coast to make it generally salable. The energetic business promoter has not failed to grasp the opportunity. Some small insurance companies and some specially organized "medical service" or "hospital associations" are selling sickness insurance to individuals or groups, and hiring doctors to furnish care. The liberal promises which are made at the time of the sale are not usually borne out by the actual contract, which the prospective patient is too likely to sign before reading the fine print. Legislative regulation of these commercial medical contracts has become an active issue in California.

The organized physicians of California have criticized these commercial ventures, but also have taken hold of the problems and needs of their locality with the characteristic energy of the Pacific Coast. Under a plan adopted last autumn by the California Medical Society, any county medical society or a group of its members may, with the approval of the state body, establish a plan of providing medical care on the basis of regular periodic payments from the people served. The program set forth by the medical society outlines one plan for hospital care only, another for general medical service and another for complete service including medical, surgical and hospital care; and outlines principles and methods of organization under which local medical societies or groups of physicians may proceed.

California does not stand alone. The State Medical Society of Washington, through a committee headed by its last year's president, has undertaken a study of the needs of the people and physicians throughout the state with the aim of working out sickness insurance plans under non-commercial direction. So has the medical society of Michigan, with the aid of members of the faculty of the State University. The establishment of a bureau of medical economics by the American Medical Association, the newly formed Council on Community Relations and Administrative Practice of the American Hospital Association, with Dr. S. S. Goldwater as chairman, the project of a bureau of dental economics now said to be under consideration by the American Dental Association, all evidence a sense of the spread and urgency of the problem.

A physician in a large southern city writes, "The local profession fully realize that an economic readjustment in medical practice is inevitable and through a committee of fifteen which has just been appointed are now considering the various plans which have been adopted throughout this and other countries with the idea of recommending that one which to them seems best suited to give service to the patient and some remuneration to the doctor."

This is only one of many local medical societies which are taking the same attitude of constructive coöperation in meeting public needs. A type of plan which seems to find favor with a number of medical societies would offer medical service from any physician belonging to the society, to any patient whose income is less than a specified amount, for a fixed monthly fee per person, with a reduced rate for the members of his family. All the payments for professional care would go to the medical society and be distributed among the members on some agreed basis, usually in proportion to the services rendered by each physician during the period covered. These plans are still on paper and in the formative stage. Their details are less important than the attitude which they show to exist among many physicians in America.

As the depression has deepened, inability to pay for medical care and sickness, and tragically low incomes among physicians and dentists have become widespread. Taxation or charity has had to provide medical care for thousands of persons who in prosperous days were able to pay for themselves, as well as for those whose

incomes were formerly low or unstable. Insufficient service even in our wealthiest cities is now frequent, and public policy has in most places continued to expect physicians to serve "poor persons" without remuneration.

The secretary of a county medical society in North Carolina writes, "In this county we are receiving $1,500 per month from relief funds but I am advised that there are no provisions whereby a physician can be paid even actual expenses from this fund for any service rendered to the class of people that this fund was intended to protect." Some experiments with a different policy had been under way before the depression. Several counties in Iowa and a small number elsewhere have arrangements with their local governments whereby an agreed annual sum is paid to the county medical society in return for which the members of the society give their services free on call to persons regarded as "indigent". The public funds paid to the medical society are generally divided among the physicians in proportion to services rendered or sometimes are used for common purposes, such as the advancement of the county society's interest as a whole.

New York City has set an example to the country during the depression, in setting up from relief funds a definite scheme whereby physicians working under the supervision of a committee of the medical society are paid for the care of the unemployed in their homes. Some of the physicians thus employed are selected on a "work relief" basis, i.e., from those known to be impoverished. In New York also, the dental society has set up a plan in coöperation with a voluntary public health agency, whereby persons above the "ordinary charity level" but unable to pay for dental care can secure it at the office of dentists who have agreed to render service for low, stated fees to be paid by the patients themselves; the plan being regarded as an alternative to a pay clinic. The Chicago Dental Society has set up a plan for free service to persons in receipt of family relief. A large central clinic is in operation, supported by relief funds, the dentists giving their services free. In Cleveland several hundred physicians of standing have placed themselves on a voluntary panel, agreeing to provide free or for whatever amount the patient can pay, services to persons who apply at clinics, but who have previously been of the group accustomed to pay a private physician.

These few examples of experiments introduced as the result of the depression illustrate that in medical service as in general relief, we have depended upon the principle of charity rather than upon a more constructive policy. It should be added that the plans of voluntary sickness insurance which were under way before the depression have, so far as is known, stood up remarkably well despite unemployment among some of their members, and some have expanded during the depression.

All the experiments described in this article are less significant because of the numbers of persons reached, though these amount to several millions, than because of the trends which they indicate and the future which they may portend. Change does not merely *happen*. Some changes follow the sweep of general social trends, others arise from new scientific discoveries, and still others spring from the conscious efforts of individuals or organized groups. When deliberately undertaken with a self-critical point of view, such changes become experiments. If the facts in this article imply anything, they mean that an attitude of experimentation is widespread among both professional men and laymen in this country.

"We recommend," declared a committee report adopted by the American College of Physicians at their recent meeting in Montreal, "that the organized representatives of the medical profession in each community be urged to consider these problems (of medical care) in the light of their varying local needs and conditions, for it is our belief that by this method the enlightened leadership of the medical profession can point the way to improvements of great value, both to the public and to the medical profession itself".

For action upon local problems, civic bodies and social agencies must organize also. Local issues differ. How to care for those too poor to pay for themselves may be the outstanding issue in one city, while in another industrial town there is need and opportunity to organize a general system of medical care on an insurance basis for the employees of the three dominating local plants. In many places there will be an immediate opportunity to help the development of annual payment for hospital care. Organized local groups, which may sometimes be Health or Hospital Councils, must, in coöperation with the professional bodies, serve their communities in the study of needs, the planning of action and the coördination of effort.

It is of the greatest importance that there be national agencies which will observe and report upon changes and experiments, will help to develop standards, and stimulate appraisals of methods and results. The adventures and accomplishments of California should be known to North Carolina, New York, Texas and Wisconsin. Industrial communities in the Southwest and Northeast, wheat counties in the West and dairy sections near the Atlantic ought to be able to learn from one another. Mistakes made in one place should not have to be repeated elsewhere.

MEDICAL PROGRESS

PROGRESS OF GASTROENTEROLOGY IN 1932

BY A. E. AUSTIN, M.D.*

VASOMOTOR RHINOPATHOLOGY

THAT there is a connection between the digestive tract and nasal catarrh has long been suspected, but Adlersberg and Forschner[1] from much clinical material have been able to prove this connection and to show that no improvement in the nasal condition could be obtained until the digestive disorders were treated and improved.

In the first group of 36 cases, no pathological condition could be discovered in the nasal cavity (rhinitis, polyps, etc.) but various pathological conditions in the digestive tract such as achylia gastrica, hypersecretion, chronic enteritis without colitis and chronic enterocolitis or colitis alone.

In all these forms of digestive tract difficulty, the nasal catarrh preceded and, in their opinion, caused it. The second group comprised 33 cases in which the connection was not so clear. These were cases that came to the clinic for treatment of intestinal disorders, diarrhea, etc.; the nasal condition was found incidentally.

The authors, by careful examination, were able to convince themselves that allergy played no part in these manifestations.

GASTRIC SECRETION

In order to verify the popular belief that atropine diminishes the amount of gastric secretion, Baltaceanu[2] has tried this alkaloid on the empty stomach, followed it by a test meal and determined its effect when given after a meal.

Fractional removal of the gastric contents was employed.

In six cases atropine was found to diminish the free hydrochloric acid, usually within the first 15 minutes after being taken. This was particularly noticeable in instances of hypersecretion.

In cases of normal secretion and hyposecretion its effect was much less:

In nine instances atropine was combined with calcium bromide, 1 mgm. of the former and 0.5 Gm. of the latter. The reduction of the free hydrochloric acid was found to be continued beyond the half hour period.

Marked relief from symptoms (pyrosis and pain) was experienced in hypersecretion but diminution of the hydrochloric acid did not always accompany this subjective relief.

*Austin—Professor (Emeritus), Tufts Medical School. For record and address of author see "This Week's Issue," page 911.

A study of the gastric acidity of 3,746 cases at the Mayo Clinic was made by Vanzant, Alvarez, Eusterman, Dunn and Berkson[3] to try to establish normals at different ages with which to compare individual findings.

All these persons had a normal digestion, so far as all the methods of investigation showed, and were being treated for other affections than those of the digestive tract. They found a steady increase in achylia from youth to old age. Free hydrochloric acid steadily increased from childhood to puberty, more rapidly in the males, when a maximum is reached.

Free hydrochloric acid in males in the years from 20 to 40 varies between 45 and 50; this decreases rapidly to 30-35 in the aged.

For women the standard is 35 during adult life decreasing slightly after 60 years. The presence of a gradual decrease in the old, though perceptible sometimes in males, is not due to progressive atrophy of the mucosa as has been supposed.

The effect of sugar on digestion has received new light from the experiments of Boller and Uberrack[4] in determining the effect of a sugar meal on the blood.

They found in 13 cases tested that the rise of the blood sugar in the anacid stomach is much greater than in the normal or hyperacid. The difference between the normal and the hyperacid is not so great but that between the hyperacid (peak, 150 mgm. %) and the anacid (200 mgm. %) is very marked.

Two explanations may be offered for this: either the emptying of the stomach affects the absorption or the difference is dependent on the acid-base relation of the body.

It is generally true that the emptying of the anacid stomach is more rapid and hence from the duodenum, the sugar enters the blood much more rapidly.

Hence the diagnostic value of the sugar meal for determining the integrity of the pancreas (insulin) must be limited by these findings.

In searching for some substance which would lessen the acidity of the gastric secretion, Lövi[5] compared the effect of 0.20 Gm. caffein in 200 cc. water with 50 Gm. sugar in the same amount of water on the same patient on subsequent days, and determined the acidity after fractional removal of the gastric contents. These tests were employed on 37 patients and it was shown that caffein invariably increases the gastric acidities while sugar diminishes them.

Nine cases of gastroduodenal ulcer were

treated by ingestion of sugar solutions with marked relief in three to eight days. The probable explanation of the lessened acidity is increased production of insulin also known to lessen acidity. The diminished acidity cannot be due to dilution or increased production of mucin.

The intravenous introduction of sugar which was also tried produced no effect.

GASTRIC ULCER, DIVERTICULUM AND HEMATEMESIS

Hausbrandt[6] quotes a case of traumatic ulcer of the stomach, produced by the hoof of a steer and followed by death and autopsy. He makes the following distinction between this type and the ordinary peptic ulcer: the former is situated on the front or posterior side of the stomach and the border is irregular zigzag in outline; the latter is usually at the lesser curvatures and round, with even edges as if punched out of the gastric wall.

The author quotes numerous other cases of traumatic ulcer where operation or autopsy established the diagnosis. His conclusion is that if, soon after a trauma, a round ulcer with regular borders is found, it cannot be of traumatic origin but if, long after the trauma, the ordinary type of peptic ulcer is found instead of the long elliptical one with serried edges, it still may have been a traumatic ulcer which has been modified by the gastric juice.

Meyer, Fetter and Strauss[7] subjected the method of Palmer to a review in which the patient had 200 cc. of half per cent hydrochloric acid introduced into the stomach at half hour intervals until 600 cc. were employed, if the patient experienced no pain from the earlier ingestions. If no pain was elicited, controlled at another time by 600 cc. of water, the test was regarded as negative. In duodenal ulcer the fluid was introduced directly into the duodenum by tube.

This test was employed on 12 duodenal ulcers, two gastric, four of cholecystitis and three cases of neurasthenia.

In all cases of ulcer, the diagnosis was verified by operation or roentgenological examination.

Their conclusions are that hydrochloric acid is not responsible for the pain in all cases of peptic ulcer, that pain in gastric ulcer is due to acid sensitivity only when gastritis is present this being equally apparent in cholecystitis, appendicitis and colitis when no ulcer is present. Hence the unreliability of the "acid test" for the diagnosis of peptic ulcer.

Since it is well known that vomiting causes a marked loss of secretion of gastric juice and loss of chlorine in blood and urine, Katsch[8] proposes a systematic removal of gastric juice and a diet of foods with a minimum chlorine content as a means of cure in gastric ulcer and acid gastritis. This can easily be accomplished by a permanent tube in the stomach and withdrawal from hour to hour of gastric juice. In this way in three days 2500 cc. of gastric juice were withdrawn.

The chlorides of the urine practically disappeared and the blood chlorides decreased 25%. Under this method pain and pyrosis in gastric ulcers disappeared rapidly, as well as loss of appetite and, in many cases, there was a lowering of the blood pressure.

In some cases of edema, the removal of the chlorine in the gastric juice was characterized by marked diminution of the edema. This did not occur in all cases, however, and it seemed more adapted to circulatory decompensation.

The author believes that this method should be tried in obstinate cases of ulcer and edema of the character described. The association between gastric achylia and essential anemia is well known but Haring[9] has sought to find characteristic radiological changes in such cases. The study was made on 35 patients (18 males) whose anemia was proved by careful blood examination and whose achylia was established even after the use of histamin on an empty stomach. The first apparent change was the presence of mucous polyps, confined usually to the antrum and rarely reaching to the cardia. The second feature was the diminution or absence of the rugae of the mucous membrane; in these cases a four weeks' treatment with liver caused restoration of the rugae and a clinical improvement in the patient. The peristalsis was increased and there was never stasis. After several autopsies the anatomical basis of these marked changes was not discovered, nor their clinical effect on the destructive process in the blood.

Certain epithelial defects on the tongue especially in the posterior portion have been noted by Glaessner[10] in proved cases of gastric and duodenal ulcer which seem to him worthy of diagnostic importance, in the detection of this disease. These defects may be multiple along the median line or symmetrically arranged in front of the greater papillae; they are superficial and not painful yet appear like small ulcers. These lingual ulcers appear only in gastric and duodenal ulcers when active and, when healed, the tongue assumes its normal appearance.

In all, this condition was noted in 50 cases of ulcer and in two cases of gastric cancer engrafted on ulcer.

As gastritis so frequently accompanies gastric ulcer Norpoth[11] has had an opportunity with the aid of radiology to investigate which condition is primary and to determine, whether gastric catarrh may not be one of the causes of both gastric and duodenal ulcer.

In the three cases reported it was found that a gastritis, which under hospital care was relieved, eventually returned with gastric ulcer in two cases and duodenal ulcer in one. Of course, every means of a clinical nature was employed

to discover an ulcer at the first admission of the patient but without avail.

On account of its rarity Bársony and Koppenstein[12] report seven cases of diverticulum of the stomach with symptoms and treatment. Many of these cases are undoubtedly congenital but some are acquired due, according to the belief of the authors, to weakened patches in the wall of the stomach. The common site of the diverticulum is at the cardia (six of seven instances) and cause in most individuals no symptoms. In two cases where severe substernal pain was experienced, operation was done with extirpation of the diverticulum but with no relief of the pain.

The authors recommend that when such a lesion is found, every effort should be made to find some other cause for the patient's discomfort as this form of diverticulum practically never causes symptoms.

Apart from bleeding from cancer and ulcer of the stomach, Bortz[13] describes other forms of hematemesis where operation fails to reveal either of these conditions, giving illustrative cases of each variety; they are (1) diffuse gastric hemorrhage due to severe physical or emotional strain, (2) profuse hemorrhage from superficial defects of the mucosa, (3) bleeding from a pore-like opening into one of the gastric vessels, (4) hemorrhage from multiple minute erosions, (5) capillary oozing, (6) hemorrhagic gastralgia, (7) diffuse bleeding as a sequela of operation on ulcer of the stomach.

His conclusions are that hemorrhage may occur from any or all parts of the gastric mucous membrane when there have been no or mild gastric symptoms.

The diagnosis may be impossible before operative intervention where the usual diagnosis has been bleeding ulcer. Treatment should be medical rather than surgical, as the latter does not seem effective in these cases.

DUODENAL ULCER AND DIVERTICULUM

Bouchut and Froment[14] have found several cases of gastroduodenal ulcer where the old adage of hunger pain and food relief is not true and they describe abnormal forms of pain produced by this disease.

The first form is that of attacks of pain in the lumbar region, propagated to the base of the chest which bears no relation to food and is accompanied by no signs of indigestion; these pains occur chiefly at night.

Another type assumes the pain of Pott's disease located between the tenth and twelfth dorsal vertebrae, periodic, chiefly at night and relieved by food or a cup of tea. No symptoms of indigestion or abdominal pain were observed.

The second form assumes the character of angina pectoris, the pain arising under the sternum and propagated to the clavicles; the pain is very agonizing and accompanied by the sensation of imminent death.

The third form assumes the character of appendicitis (appendicular colic) with the maximum of the pain in the right lower quadrant, and even pain to pressure in this region may be elicited.

In all these cases, six in number, either a prepyloric or duodenal ulcer was established by the radiogram and marked relief was obtained by alkalis and an ulcer diet.

The authors urge the necessity of a careful examination, including radiology in these atypical forms of painful ulcer.

After reviewing some of the cases where gastric crises due to tabes have been mistaken for ulcer, Pratsikas[15] describes very fully a case of duodenal ulcer which showed all the symptoms of gastric crisis due to tabes. The attacks of pain were periodic with vomiting and in the intervals the patient had no digestive discomfort. There were no other symptoms of tabes and the spinal fluid was negative to Wassermann. The x-ray, however, showed a constant distortion of the bulbous portion of the duodenum and there was hypersecretion. The operation confirmed this and a callous ulcer was removed.

The author urges that no diagnosis of gastric crisis should be made, even though the patient is syphilitic, without a very careful examination to determine the presence of a gastric or duodenal ulcer, as many tabetics at the autopsy are found to have them.

Two methods of treatment of duodenal ulcer, the ordinary dietetic and medicinal and the use of the permanent duodenal tube, controlled by x-ray, were carried out by Böhme[16] and the results compared. In the first group were 44 patients and in the latter 26. At the end of three weeks both groups were free from symptoms, showing little difference. The disappearance of the distortion in the duodenum as shown by the radiological examination was more rapid in those treated by diet and alkalis than in those with duodenal feeding through the tube. The restoration of the contour of the duodenum also depends on the length of the disease. When from one to two years old the percentage of cures (restoration to normal) is forty per cent; when from seven to ten years old only nine per cent of restorations occur. The author's conclusions are that duodenal feeding has but little advantage and, if used, must be continued for three weeks.

The common association of constipation and gastric catarrh has been studied by Stepp and Kuhlmann[17] in 20 cases by the aid of radiology. The first condition noticed was the speed with which the chyme passed through the duodenum, i.e., much more rapidly than that of normal individuals or in common forms of constipation. Furthermore while normally the contrast material does not reach the cecum for three hours after it is taken, in these cases it often reached the sigmoid in an hour and a half. The stom-

ach showed no evidence of increased peristalsis. Their explanation is that, by the rapid filling, the cecum becomes overdistended; absorption is increased with a corresponding thickening beyond this point. The barium was often found in such cases after irrigation, from two to six days after ingestion. Their advice is, in chronic constipation with gastritis, to make a careful study of the condition of the duodenum. That a duodenal diverticulum may cause impairment of the pancreatic secretion has long been suspected on account of the intimate relation between the duodenum and the pancreas through the duct of Wirsung, but it has been left to Fulde[18] to prove this in a series of ten cases. A careful investigation of the functions of the pancreas was made. In three instances, distinct reduction in the amount of trypsin and steapsin was found, as evidenced by large amounts of undigested fat in the stool, absence of trypsin in the stool and the presence of large amounts of muscle fibers with striae intact.

The not rare combination of chronic pancreatitis and duodenal diverticulum should always lead the clinician to test the functions of the pancreas, and, if found wanting, surgical means should be sought to eliminate the diverticulum as a possible source and cause of the pancreatitis.

THE LIVER AND BILIARY PASSAGES

While an absence of the shadow of the gall bladder, after the dye is taken, is usually recognized as a proof of its pathological condition, Anderson and Marxer[19] recount several conditions in which this may occur without a diseased gall bladder; among these are simple enlargement of the liver, a malignant growth in the right upper quadrant of the abdomen, pregnancy in its later months and perforated duodenal ulcer. In such cases they found that a subsequent ingestion of the dye often showed a well-defined shadow of the bladder, missing at the first examination. Hence they recommend that if the first ingestion of the dye fails to produce a shadow, three quarters of the same dose of dye be given 24 hours afterward with restricted fat in the diet during the interval.

They present 11 cases of which five, after lack of filling in the first test, showed a well-filled bladder after the second ingestion. They warn against regarding a gall bladder which does not fill at the first test, whether the dye is given orally or intravenously, as pathological until a second test is made within 24 hours.

For additional accuracy in the diagnosis of diseases of the liver Wainstein[20] has employed a diet rich in cholesterin (butter, 100 grams, calves' brain, 150 grams, five egg yolks, calves' liver, 100 grams and white bread 200 grams) for three days. The cholesterin content of the blood was then determined, first before the diet was employed and then from one to one and a half hours after the last meal of the cholesterin rich food. The test was employed on 77 cases distributed as follows: diseases of the liver and biliary ducts 51; diseases of other organs in which the liver was probably involved 14; and 12 in which no suspicion of the liver normality arose.

The results demonstrated that the healthy individual showed no increase of cholesterin on this diet. Among the 15 cases of pure hepatitis 11 gave an increase while four showed no change; three of the four luetic cases showed an increase.

The author's conclusions are as follows: (1) that quantitative cholesterin determination of the blood should be a common clinical practice; (2) that the increased cholesterin diet gives a clear idea of the integrity of the liver function; and (3) that increased cholesterin content of the blood (while fasting) and the hypercholesteremia on the above diet indicates a disease of the liver.

Ross[21], in order to appraise the results of operation on the gall bladder, chiefly cholecystectomy, sent a questionnaire to 114 discharged patients asking whether any symptoms remained. These were then grouped as cured, relieved or in the same condition as before the operation. Ninety-four of these reported themselves as cured, 12 as relieved of some of their symptoms and eight as unchanged. The last complained of severe or mild abdominal pains, flatulence, acid eructations and vomiting or nausea.

When stones are actually present, the chance of permanent cure is much greater than in chronic cholecystitis without stones, though every gall bladder removed was found to have unquestioned pathological changes. The average period of convalescence before the patient assumed his former labors was 13 weeks.

In 1291 autopsies Myenburg and Robert[22] found 131 cases of cirrhosis of the liver and in 127 adults a careful study was made of the clinical history and symptoms; of these 91 were males and 36 females; these were divided into four classes: (1) Laennec type, 118; (2) biliary cirrhosis, five; mixed type, six and the rare types, two.

Twenty-two died from the uncomplicated cirrhosis (hepatic coma), 24 had a coexistent cancer of the liver, 19 died of circulatory stasis, 11 died from an acute infection and eight from pulmonary tuberculosis; others died from apoplexy, uremia and pulmonary embolism.

Icterus was very prominent in biliary cirrhosis and in about one-fourth of the Laennec type; ascites and esophageal varices occur in the early stages and with equal frequency in all types. In 17 instances chronic alcoholism was established. A careful analysis of the copper content of 24 non-cirrhotic livers and 61 cirrhotic

livers was made in which it was found that the average quantity in the latter (47.56 mgm.) was decidedly larger than the quantity of copper in the former (25.42 mgm.) yet the authors felt that there is still much doubt that copper plays an important part in the etiology of hepatic cirrhosis.

THE PANCREAS

It has so long been advocated that acute pancreatic necrosis should be immediately referred to the surgeon that Strauss[23] reports seven cases in one of which operation was followed by death and six in which medical treatment brought complete recovery. All of these suffered from the same symptoms, sudden intense pain in the left upper quadrant, rigidity of the abdominal muscles, retention of feces and gas, vomiting, shock and hyperglycemia.

His treatment consisted largely of withdrawal of all food, and clysters by the drop method of 10 per cent grape sugar solution. No food should be given by mouth for at least eight days.

THE COLON

The great difficulty in the treatment of ulcerative colitis has caused numerous methods of management and any new treatment is worthy of trial. Bücking[24] recommends transfusion of blood in this condition, after reporting five cases in which irrigation and dysentery serum proved ineffective.

In six other cases in which all the ordinary methods of treatment had been employed without relief, transfusion of 300-500 cc. of defibrinated blood, repeated in some cases, proved effective in four cases and without avail in two.

The author's conclusions are that, as ulcerative colitis is very prone to remissions, any decision as to the efficiency of any method of treatment must be guarded, that in light cases the usual dietetic and medicinal means of treatment are sufficient. In fresh cases the dysentery serum avails to bring improvement. In severe forms of this disease where other means have failed, blood transfusion may bring about a cure, but there are still forms of this disease where no means are of any avail.

In spite of its comparative rarity, Bensaude, Hillemand and Angier[25] report their observations on 18 cases of intestinal polyp which they have been able to study.

The symptoms chiefly noted were diarrhea with five to eight movements daily accompanied by blood. All examinations to determine the presence of parasites or pathological bacilli were negative. There may also be present tenesmus and abdominal pains. Since these polyps may be found in any part of the colon, rectal examination by touch or by the proctoscope fails to detect more than a small minority of them. Roentgenology, however, after an enema of barium sulphate has proved the most effective means of detecting these growths and some very admirable radiograms accompany this article. A still greater advance has been made by evacuating the greater part of the contrast material and insufflating air before the picture is taken. In conclusion the authors emphasize the importance of a radiological examination in all cases of bloody diarrhea; the possible relation of intestinal polyps with infantilismus; the importance of electrocoagulation of those growths which can be reached, even if further surgical intervention is intended and the possibility that they may lead to cancer.

A report on 76 cases of cancer of the colon is made by Gordon-Watson[26] which came to operation, some in the early stage and some after obstruction had taken place. He warns of delay in diagnosis, stating that, in an elderly person previously in good health with daily evacuations, a cessation of this habit with occasional abdominal pains, borborygmi, with a sense of abdominal discomfort or distention, a thorough chemical and roentgenological examination should be made.

When obstruction occurs which is likely to be acute, a colostomy to relieve the patient should always precede a resection. Of those operated on 16 had obstruction and seven died; 46 required resection during an interval and eight died. Anastomosis was performed on nine and one died, while five colostomies alone were performed with no deaths.

THE PERITONEUM

After dwelling on the increased number of deaths from perforated appendices even when operation takes place early, Kunz[27] reports the advantage of the use of serum at the time of operation. After discussion of the various kinds of sera, he recommends the peritonitis serum "Behring" which has been changed to contain more antibodies against the bacillus coli and the Welch-Frankel bacillus.

He reports on 117 cases of perforated appendix where the operation was accompanied by serum treatment. Fifty-three of these were comparatively mild, but 64 had a severe diffuse peritonitis; each of these received 40 cc. of the serum intramuscularly. Of the 117 cases, 16 died and 101 were restored to health making a mortality of 13 per cent. As compared with these was a series of 62 cases, similar in all respects, that received no serum. Of these 16 died making a mortality of 25 per cent. In instances where the disease is very severe or where improvement does not follow the first treatment, 20 cc. of the serum may be given intravenously and continued daily for three days.

REFERENCES

1 Adlersberg, D., und Forschner, L.: Über den Zusammenhang der Rhinopathia vasomotoria mit Verdauungsstörungen. Med. Klin. 28:779 (June 3) 1932.

2 Baltaceanu, G.: Über die Wirkung des Atropins und einiger Bromide auf die Magensekretion. Arch. f. Verdauungskr. 51:175 (March) 1932.
3 Vanzant, F. R., Alvarez, W. C., Eusterman, G. B., Dunn, H. L., and Berkson J.: The normal range of gastric acidity from youth to old age. Arch. Int. Med. 49:345 (March) 1932.
4 Boller, R., und Überrack, K.: Der Einfluss der Magenazidität auf die Zuckerbelastungsprobe. Wien. Arch. f. inn. Med. 22:307, 1932.
5 Lövi, L.: Zucker-probefrühstücke. Wien. klin. Wchnschr. 45[1]:460, 1932.
6 Hausbrandt, F.: Ueber traumatische Magengeschwüre. Wien. klin. Wchnschr. 45[1]:681, 1932.
7 Meyer, J., Fetter, D., and Strauss, A. A.: Relation of pain of peptic ulcer to gastric motility and acidity. Arch. Int. Med. 50:338 (Aug.) 1932.
8 Katsch, G.: Entziehung von Magensaft als Heilmittel. Deutsche med. Wchnschr. 58:1590, 1932.
9 Haring, W.: Röntgenbefunde am Magen bei perniziöser Anämie. Med. Klin. 28:1094 (Aug. 5) 1932.
10 Glaessner, K.: Über Ulkuszunge. Arch. f. Verdauungskr. 51:68 (Feb.) 1932.
11 Norpoth, L.: Ulkusgenese auf dem Boden von Gastritis. Arch. f. Verdauungskr. 52:26, 1932.
12 Bársony, T., und Koppenstein, E.: Klinische und röntgenologische Erfahrungen über die Divertikel des Magens. Wien. klin. Wchnschr. 45[2]:1089, 1932.
13 Bortz, E. L.: Diffuse hemorrhage from the stomach. Arch. Int. Med. 50:1 (July) 1932.
14 Bouchut, L., et Froment, R.: Quelques formes douloureuses atypiques de l'ulcère gastro-duodénale. Arch. d. mal. de l'app. digestif. 22:353 (Apr.) 1932.
15 Pratsikas, A.: Ueber Beziehungen zwischen Ulcus duodeni und gastrischen Krisen. Wien. klin. Wchnschr. 45[2]:993, 1932.
16 Böhme, A.: Die Heilungsaussichten des Zwölffingerdarmgeschwürs bei innerer Behandlung. Deutsche med. Wchnschr. 58:1002 (June 24) 1932.
17 Stapp, W., und Kuhlmann, F.: Über das Verhalten des Dünndarms bei chronischer Gastritis mit Obstipation. Med. Klin. 28[2]:1376, 1932.
18 Fulde, W.: Duodenaldivertikel als Ursache chronischer Pankreasstoerungen. Deutsche Arch. f. klin. Med. 173: 404, 1932.
19 Anderson, J. H., and Marxer, O. A.: Oral cholecystography: the cumulative method. Brit. M. J. 2:401 (Aug. 27) 1932.
20 Wainstein, S. S.: Zur Frage des Cholesterinstoffwechsels bei Leberkrankheiten. Arch. f. Verdauungskr. 52:50, 1932.
21 Ross, J. C.: The symptomatic end-results of operations for cholecystitis. Brit. M. J. 1:1026 (June 4) 1932.
22 Myenburg, H., und Robert, P.: Ueber Leberzirrhose, insbesondere über ihre Häufigkeit und Aetiologie. Schweiz. med. Wchnschr. 62:533 (June 4) 1932.
23 Strauss, L.: Die konservative Behandlung der akuten Pankreasnekrose. Arch. f. Verdauungskr. 51:321 (May) 1932.
24 Bücking, W.: Über die Behandlung der Colitis gravis mit besonderen Berücksichtigung der Bluttransfusionen. Arch. f. Verdauungskr. 50:145 (Oct.) 1931.
25 Bensaude, R., Hillemand, P., et Angier, P.: La polypose intestinale. Arch. d. mal. de l'app. digestif. 22:473 (May) 1932.
26 Gordon-Watson, C.: The diagnosis and treatment of carcinoma of the colon. Brit. M. J. 1:969 (May 28) 1932.
27 Kunz, H.: Die Serumbehandlung der Peritonitis. Wien. klin. Wchnschr. 45[1]:709 (June 3) 1932.

MOTHER'S DAY

(Continued from Page 886)

Grace Morrison Poole, President of the General Federation of Women's Clubs, and Julia K. Jaffray, Chairman of the Department of Public Welfare of the Federation, who have joined in a public statement calling for the coöperation of the women's clubs of the country. "Too long has sentiment alone been the characteristic of Mother's Day," states the announcement. "Until the public knows what adequate maternity care is and how to get it, there is little hope of reducing America's maternity death rate to a point where it will stand comparison with that of other leading nations."

According to Mrs. John Sloane, President of the Maternity Center Association, the most important factor in improving maternity care is the selection of the physician. "The physician," said Mrs. Sloane, "should be one whose experience warrants the extent of confidence which under the circumstances must be placed in him. The Medical Board of the Maternity Center Association, comprised of leading obstetricians, is responsible for the statement that childbirth is not an illness, but a physiological process requiring the services of a competent and experienced physician if it is to be fully safeguarded.

"It is easy to understand," added Mrs. Sloane, "how husbands and wives seek a physician whom they hope can provide a simple, easy, painless childbirth, but they should know that leading authorities are unanimous in the opinion that efforts to relieve normal pain tend to increase the need for operative interference, and multiply the danger of infection and other complications.

"We have been careless of mothers because we do not realize that about half of those who died could be saved."

Dr. George W. Kosmak, Chairman of the Medical Board of the Association, and Editor of the *American Journal of Obstetrics and Gynecology*, stated that the Campaign is also emphasizing the need for selecting a good hospital, unless the mother plans to have her baby at home.

"When women started going to hospitals to have their babies," said Dr. Kosmak, "it was hailed as a solution to the high maternal death rates. This did not prove to be the case. A hospital confinement is not necessarily a safe confinement, for hospitals as well as their attendants, vary in quality and competence. How is the layman, who can judge a hospital only by looking at the brick and mortar which make its structure, going to be able to judge the quality of care it gives, which has no relation to architecture? An aid in selecting a hospital is to choose one which has been approved by the American College of Surgeons. It means that strict supervision is exercised over the medical and nursing work performed within its walls, and that all risks are kept at a minimum. A hospital which has received this approval is always glad to state so to anyone calling over the telephone. There is, therefore, no need for a prospective mother to take a chance on going to an inferior institution. A woman is safer with good care at home than she is in an inferior hospital.

"Hospitalization of maternity cases is increasing everywhere, but the puerperal mortality is not decreasing anywhere, is the statement made recently by Dr. Joseph B. De Lee of the University of Chicago, and Dr. Heinz Siedentopf of the University of Leipzig." — *Excerpts from the Bulletin of the Maternity Center Association, New York City.*

CASE RECORDS
of the
MASSACHUSETTS GENERAL HOSPITAL

ANTE MORTEM AND POST MORTEM RECORDS AS USED IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C. CABOT, M.D.
F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 19171

SUDDEN POSTOPERATIVE COLLAPSE AND DEATH

SURGICAL DEPARTMENT

PRESENTATION OF CASE

DR. JOHN D. STEWART:* This is the case of a twenty-three year old clerk who was admitted to the Emergency Ward because of pain in the abdomen and vomiting.

The story was that in the past his health had been entirely satisfactory. There had been no disturbance similar to that which brought him into the hospital this time.

The present illness began two weeks before admission, when he was taken with generalized lower abdominal pain which was intermittent in character and at first not very severe. The disturbance was not enough to interfere with his work; but day after day the pains continued. His appetite became poor. His bowels, which had previously moved satisfactorily every day, became constipated. Two days before admission he took a large dose of citrate of magnesia. Following that he developed a diarrhea of seven or eight movements that day; he was very definite in his statements that there was bright blood in the movements. The diarrhea lasted only one day. The following day, the day before admission, his bowels moved only once, normally. He was awakened in the middle of the night before he came in not only with pain but nausea, and began to vomit. He had had no vomiting prior to that time. During the twelve hours before he came in he vomited at half hour intervals, so that he could not keep anything on his stomach. The pain during the last twenty-four hours had also become more severe. It was scattered throughout his abdomen, non-radiating and still rather intermittent in character.

When he came in, his general condition was fairly good. His tongue was a little dry. He was not particularly uncomfortable. The examination of his chest was essentially negative. His abdomen was not distended. There was diffuse tenderness throughout his lower abdomen, more on the right, and definite spasm throughout the whole lower abdomen. There was audible peristalsis. Rectal examination showed tenderness in the pelvis, equal on both sides; no mass could be felt. The temperature was 100.6°, rectal, the pulse 100. The white cell count was 23,000. The urine was negative except for numerous white cells.

He was operated upon the same day under ether anesthesia. Following the operation he was put on Ochsner's régime and for the first two days did fairly well. His temperature continued to be elevated in the evening up to 101°. His pulse rate gradually rose from 100 to 130 in forty-eight hours. At the end of this time he went into very sudden and striking collapse. The extremities were clammy and cold. He was very restless and had to be given morphia quite freely. The pulse was very rapid, rate 180, and almost imperceptible. Examination of the abdomen showed no particular changes there. Drainage from the wick was moderately free. In this state of collapse he lasted only three or four hours; in spite of everything we could do for him he died.

*Resident on the West Surgical service.

CLINICAL DISCUSSION

DR. STEWART: Before operation we felt that the patient probably had appendicitis and possibly an appendix abscess, although we could not feel any mass.

In the right lower quadrant in the iliac fossa was an indurated mass involving the lower end of the cecum, and scattered around the appendix coils of the small intestine were involved in the mass. The adhesions were very dense, so that it was difficult to cut them. On dissection into this mass there was a small amount of free foul pus present. The appendix seemed to lie in the center of the cavity. The appendix in its distal half was gangrenous and could be removed without much difficulty, but the base of the appendix was so involved in this induration that it seemed impossible to get it out entirely. It was rather interesting that the cecum was definitely involved in the inflammatory process, whether simply by extension I do not know. We got out as much appendix as we could without difficulty and drained the pelvis and the site of the appendix in the usual way.

We thought he developed a very virulent disseminating peritonitis and that was the cause of his death.

DR. JOHN D. STEWART'S DIAGNOSES

Appendix abscess.
Generalized peritonitis.

CLINICAL DIAGNOSES (FROM HOSPITAL RECORD)

Acute appendicitis.
Generalized peritonitis.

ANATOMIC DIAGNOSES

Acute and chronic appendicitis.
Operative wound, appendectomy with drainage.

Slight generalized peritonitis.
Pulmonary edema.
Chronic typhlitis.
Patent foramen ovale.

Pathologic Discussion

Dr. Tracy B. Mallory: The interesting feature in this case to us was the rather marked inflammatory process in the cecum extending for a distance of several centimeters from the base of the appendix.

This slide shows the remnant of the appendix. There is so much necrosis and hemorrhage that it was difficult to identify with certainty. This probably represents the lumen of the stump of the appendix, such of it as had not desquamated off completely. The surrounding mesentery shows a great deal of fibrosis and a marked acute and chronic inflammatory process, suggesting that he might have had some recurrent attacks.

The second section is the wall of the cecum. The mucosa on this side is completely necrotic, the muscularis markedly thickened, edematous and invaded throughout by leukocytes and lymphocytes. On the serosal surface there is an acute fibrinous exudate.

I think perhaps the most interesting feature of the history is the story of passing blood in the stools, if that is correct. Does anyone ever see that in uncomplicated appendicitis?

Dr. Arthur W. Allen: I cannot recall having seen it in the ordinary type of appendicitis.

Dr. Mallory: There was a sufficiently extensive necrosing process in the epithelium of the mucosa of the cecum here to give a reasonable explanation of hemorrhage if it actually did occur.

A Physician: Did he have peritonitis?

Dr. Mallory: Yes.

Dr. Allen: There was no perforation in the cecum in this case?

Dr. Mallory: No.

Dr. Stewart: Could you see whether the tie of the stump of the appendix was intact or whether there might have been leakage?

Dr. Mallory: The appendix had ulcerated off so completely that we had great difficulty in identifying anything. We found this one little nubbin of necrotic tissue that we think was appendix, with no very obvious sutures. Everything was so necrotic that I do not think sutures could possibly have held.

CASE 19172

ERUCTATION OF GAS, ANOREXIA, ABDOMINAL DISCOMFORT AND DISTENTION

Surgical Department

Dr. Richard E. Alt:* This is the case of a sixty-five year old native store manager who was admitted with a diagnosis of incomplete intestinal obstruction. His chief complaint was upper abdominal discomfort of six days' duration.

His present illness began six days before admission, when he awoke in the morning with a feeling of discomfort in his epigastrium. He drank one cup of coffee for breakfast and immediately eructed much gas. Eructation of gas and extreme anorexia were present from the beginning and persisted throughout his illness. On the first day he had two formed bowel movements which were not abnormal in nature. The abdominal discomfort was never severe enough to be called a "pain" by the patient. He preferred to call it an "ache". He had no cramps, the ache being persistent with only occasional periods of subsidence. It was aggravated by movement of the body.

He vomited three times during his illness, once each on the third, fourth and fifth days of his illness. The vomitus consisted of bile stained fluid which was not feculent in nature. He had a normal bowel movement on the day before admission. He had passed no blood by rectum.

On the day before entry, the fifth day of his illness, he was given barium sulphate by mouth and x-ray observations were made of his stomach and intestines. He was referred to this hospital on the sixth day of his illness, the anorexia, gaseous eructations and abdominal distention persisting, while the abdominal ache was somewhat less severe than during the preceding five days.

His past history failed to reveal anything pertinent to his present illness. He maintained that he had enjoyed excellent health until a week before entry. He had had no previous operations. A detailed gastro-intestinal history was negative. He had had no previous similar attacks. His bowels had always been regular and he had noticed no change in his bowel habits. He was not certain of any recent loss of weight.

Physical examination revealed a pale, thin elderly man lying quietly in bed, not in acute distress but appearing quite tired and ill. His heart was not enlarged and the sounds were regular. There was a loud middiastolic murmur heard best at the apex. The blood pressure was 170/80. Examination of the lungs was negative. The abdomen was tense and distended. There was dullness in both flanks, shifting on change in position. No masses could be felt and there was no tenderness. No peristalsis was audible. Examination of the urine was negative.

A flat abdominal x-ray plate showed a large amount of barium in the small bowel, which was dilated to the size of the colon. A barium enema flowed freely to the cecum and entered the terminal ileum without any definite evidence of obstruction. The terminal ileum was normal in size until it reached the right small pelvis, where

*Junior interne on the West Surgical service.

the barium disappeared into the abnormally large small intestine.

Exploration was done under gas-oxygen and local anesthesia.

Clinical Discussion

Dr. George W. Holmes: This film demonstrates a tremendously dilated small bowel; the obstruction must be marked. It is not of the type that we see with paralysis. Complete paralysis of the bowel would show absence of peristalsis. It is a picture of obstruction with marked dilation.

A Physician: Can you see just where the obstruction is?

Dr. Holmes: No, but we can see that the dilated bowel goes pretty well down to the terminal ileum.

Dr. Daniel F. Jones: There are several important things about this case. The first is that two days before entry the man was given a barium meal. That never should be done. The next thing is that he was a man of sixty-five and nobody at any time thought of appendicitis. I think one thing that all of us ought to keep in mind is that people over the age of forty with appendicitis in the great majority of cases do not have the same symptoms that younger people have. The temperature of older patients is usually low, the pulse low, and they are not apparently so ill as the young patients. This man had appendicitis without much disturbance.

Strange to say, only a month before I saw this man I had another patient of the same age. He came down I think it was from Maine with intestinal obstruction and nobody mentioned the fact that he had had any pain or tenderness in his right side. Nobody had suggested appendicitis. He was sent down with intestinal obstruction, which he did have. He was not so ill as this man; he did get a little through; but he had obstruction of the small intestine and had acute appendicitis in the same way. Nobody considered acute appendicitis in either of these cases.

The next thing is that although this man had obstruction of the small intestine we could not get him to admit that he had had colicky pain, which we all think is the symptom of obstruction of the small intestine. But this man was quite ill, had come a long distance and was very much used up, so much so that as he came late in the afternoon I let him go until the next morning. Therefore I believe that this man forgot that he had had attacks of colicky pain in the early hours of this obstruction. That is important in small intestinal obstruction, because many patients will tell you that they did not have colicky pain, yet if you go back into the history carefully you can in almost all cases get an early history of colicky pain and find that later in the course of the disease there has been no colicky pain. This man had no temperature. His pulse I have forgotten. Dr. Alt, will you tell us? It was not extremely high.

Dr. Alt: The pulse when he came in was 80.

Dr. Jones: The man was extremely ill. He refused to admit that he had any pain whatever; it was simply a full feeling. He had been ill for six days and had had a barium enema two days before he entered.

The next important point in this case is that something had to be done for him, and in order to do something for him we did it with local anesthesia and a little gas because I had no intention of doing anything but an enterostomy. I put my hand down into the pelvis perfectly flat and attempted to roll out a loop of small intestine. It kinked and bent a little,—I thought I had it so that it would not bend at all,— and in attempting to bring it out the intestine burst and all the intestinal contents spread throughout the pelvis. That is a condition that will be met very frequently in these small intestine obstructions if they have gone any length of time. I think when Dr Mallory tells you the findings at the autopsy he will tell you that the intestine was like so much wet blotting paper. In fact I would rather handle wet blotting paper than an intestine like this. It seemed impossible at the time to get a loop so that we could put in a tube without bringing the intestine up a little. I believe if I had thought of it a little sooner and had used an aspirating needle on the suction apparatus, and instead of attempting to remove the loop had removed the contents of the intestine, I might have been able to put a tube into the intestine *in situ* in the abdomen. Unfortunately I thought I was careful enough not to do any damage; but I did.

It seems to me that these are the important facts: (1) that old people do have appendicitis with symptoms not comparable to the symptoms of appendicitis in the young; (2) that barium should not be given by mouth in any case of intestinal obstruction; and (3) that this man had nothing except distention to suggest intestinal obstruction. He vomited only about three times I think. (4) The next thing is that these distended intestines are very soft and friable and that the least pressure on any one point will make a hole in the intestine.

Clinical Diagnoses (From Hospital Record)

Carcinoma of the cecum.
Intestinal obstruction.
Perforation of the small intestine.
Generalized peritonitis.

Anatomic Diagnoses

Acute appendicitis with perforation.
Appendiceal abscess.
Generalized peritonitis.
Operative wound, ileostomy.
Acute enteritis of the ileum.
Arteriosclerosis, moderate coronary, marked aortic.

Pathologic Discussion

Dr. Tracy B. Mallory: The autopsy on this man showed a generalized peritonitis which of course was inevitable after the accident at the operation. There evidently had been a sharply localized peritonitis before. We could still make out a definite pelvic abscess which was the source of the obstruction, and in the center of that pelvic abscess we found the stump of gangrenous ruptured appendix. The last three feet of ileum were completely necrotic, bright red and friable, semigangrenous. The process had advanced a little farther even since the time Dr. Jones saw it at operation.

Last year we discussed at one of these sessions three cases, I think, of perforated appendix and one of perforated diverticulum of the sigmoid in elderly men. All of those were sent in by the same general practitioner. In every case a diagnosis of intestinal obstruction, presumably carcinoma, had been made and an acute perforation of a viscus had not been suspected in any of the cases. I think this case was almost identical in much of its symptomatology with those. We get so used to thinking of acute appendicitis as a disease of young people that we forget that it may occur at any age, even in the high senile period.

Dr. Edward B. Benedict: I think that this case is typical of the cases that Wilkie classes as obstructive appendicitis, giving no temperature and perforating early.

Dr. Mallory: Were those chiefly in old men?

Dr. Benedict: No, obstructive appendicitis may occur at any age. Of course the obstruction of the intestine itself occurred only after perforation.

Dr. Beth Vincent: Is this a purely mechanical obstruction?

Dr. Mallory: Yes, I think the gluing of the small intestine loops into the pelvis by adhesions resulted in kinking and obstruction.

Dr. Vincent: Was the gangrene due to the obstruction?

Dr. Jones: It was not very obvious.

A Physician: Do you not think it is due to obstruction of the vessels around the small intestine because of the distention?

Dr. Mallory: That may be possible. This portion of the bowel had collapsed following the enterostomy so that that was not evident to us.

Dr. Jones: But the whole bowel was almost exactly the same all the way along. I have always thought that gangrene was due to distention shutting off the terminal vessels of the cecum.

A Physician: What bearing has the giving of barium on this process?

Dr. Mallory: In case a slight degree of obstruction was already present that might make it complete.

Dr. Aubrey O. Hampton: If the barium is as liquid as it appears on that film, how can you assume that? It was liquid, was it not?

Dr. Mallory: It does not usually stay liquid under those conditions.

Dr. Hampton: In an obstructed gut it would seem that it might, because it is full of fluid.

Dr. Jones: I think if you pour a quart of barium into an already distended intestine you are doing a good deal of harm.

Dr. Hampton: If you are not sure that it would solidify how can you be sure that it would do more harm than other fluid?

Dr. Holmes: The gangrenous portion of the bowel would not be able to carry on peristalsis.

Dr. Mallory: No.

Dr. Holmes: In looking at these films it seems as though the lower portion of the distended gut showed less evidence of peristalsis than the upper portion.

Dr. Jones: This loop was in direct contact with the abscess in all probability.

Dr. Mallory: In answer to Dr. Hampton, I am sure that in cases of obstruction of the large intestine from cancer I have seen a number of cases in which obstruction came on suddenly following barium given by mouth and in those cases the barium has been quite solid by the time we found it in the large intestine. Whether enough of the fluid element may ever be absorbed in the small gut I am not sure. The occasional finding of formed feces in the ileum and jejunum suggests the possibility, though of course they may have worked back from the large bowel.

Dr. Holmes: Will a completely obstructed colon absorb fluid?

Dr. Jones: It should not, no; but it depends largely upon the amount of obstruction.

Dr. Hampton: That is the point.

Dr. Jones: I agree with Dr. Mallory that I have seen several cases in which it has occurred.

Dr. Holmes: In this case we probably have about all the evidence that we are likely to get. Probably the surgeon wanted us to locate the obstruction more accurately.

Dr. Hampton: I did not do the examination. I am not defending myself. It is just a question I am trying to solve.

Dr. Mallory: We had recently one case with symptoms of intestinal obstruction in which solid fecal material was found half way up the ileum,—as solid as we ever find it.

Dr. Holmes: Our experience with barium given by rectum in the form of an enema is that it has not produced obstruction to my knowledge. We have thought it was a safe procedure. We do not as a rule advise barium by mouth in the presence of obstruction. The contents of the small intestine, however, are supposed to be liquid, and obstruction is not likely to occur when barium is given. The large bowel presents a different problem, and an incomplete obstruc-

tion may become complete after giving barium by mouth.

DR. JONES: In the first place you understand that this barium meal was given outside!! I think you are wrong about the barium and the amount of fecal material in the small intestine. A small opening will take very thin fecal material, while the contents of the intestine with barium in it will not go through a fairly good sized hole I am quite certain.

DR. ARTHUR W. ALLEN: I recall a case very similar to this one. It was seen in this hospital seven or eight years ago. A barium meal had been given in that instance. The obstruction was not due to appendicitis but to an old pelvic inflammation to which a loop of ileum had become adherent. At operation the same thing happened that happened in the case under discussion. When we tried to lift the obstructed loop out of the pelvis it broke open and the peritoneal cavity was flooded with liquid small intestinal contents and barium. At that time I had a definite feeling that the barium increased tremendously the difficulty in handling the escaping fluid. Perhaps it did not, but that was my impression.

The New England
Journal of Medicine

SUCCESSOR TO
THE BOSTON MEDICAL AND SURGICAL JOURNAL

Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY under the jurisdiction of the

COMMITTEE ON PUBLICATIONS

HOMER GAGE, M.D. JOHN W. BARTOL, M.D.
ROGER I. LEE, M.D. ROBERT B. OSGOOD, M.D.
RICHARD M. SMITH, M.D.

EDITORIAL STAFF

REID HUNT, M.D. STEPHEN RUSHMORE, M.D.
JOHN P. SUTHERLAND, M.D. HANS ZINSSER, M.D.
GEORGE R. MINOT, M.D. BENJAMIN WHITE, PH.D.
FRANK H. LAHEY, M.D. HENRY R. VIETS, M.D.
SHIELDS WARREN, M.D. ROBERT N. NYE, M.D.
GEORGE L. TOBEY, JR., M.D. ROBERT M. GREEN, M.D.
C. GUY LANE, M.D. CHARLES C. LUND, M.D.
WILLIAM A. ROGERS, M.D.

WALTER P. BOWERS, M.D., *Managing Editor*

ASSOCIATE EDITORS

GEORGE G. SMITH, M.D. WILLIAM B. BREED, M.D.
JOSEPH GARLAND, M.D.

THE NEW HAMPSHIRE MEDICAL SOCIETY
PUBLICATION COMMITTEE

D. E. SULLIVAN, M.D. H. H. AMSDEN, M.D.
R. H. MARCOTTE, M.D.

THE VERMONT STATE MEDICAL SOCIETY
PUBLICATION COMMITTEE

WILLIAM G. RICKER, M.D. C. F. DALTON, M.D.
E. A. STANLEY, M.D.

SUBSCRIPTION TERMS: *$6.00 per year in advance, postage paid for the United States, Canada $7.04 per year, $8.52 per year for all foreign countries belonging to the Postal Union.*

Material for early publication should be received not later than noon on Saturday. Orders for reprints must be sent to the Journal office, 8 The Fenway.

The Journal does not hold itself responsible for statements made by any contributor.

Communications should be addressed to The New England Journal of Medicine, 8 The Fenway, Boston, Mass.

CEREBRAL INVOLVEMENT IN HEAD INJURIES

ONE of the most difficult problems in clinical medicine is to evaluate the degree of cerebral injury in patients with severe trauma to the head. It is well known that even extensive fracture of the skull may occur without serious intracranial damage; on the other hand, extreme laceration of the brain is possible without fracture, at least so far as it can be demonstrated by x-ray examination. What, then, are the most important signs or symptoms indicative of cerebral trauma? A recent review by Russell* of two hundred cases of head injury seen at the Edinburgh Royal Infirmary gives some important data on the question involved. He finds that physical examination alone seldom provides evidence of cranial injury and the diagnosis of organic lesion of the brain must be arrived at mainly by questioning the patient or by evidence obtained from a trained observer. The occurrence of epileptic attacks provides definite evidence of considerable damage, as does also the demonstration of loss of memory. Headache and dizziness, provided they are augmented by changes in posture, a condition which physiologically alters the intracranial pressure, are of considerable diagnostic value. In addition, the demonstration of blood in the spinal fluid with loss of consciousness are both of value, although in Russell's series the estimation of the degree of injury based on the duration of the period of unconsciousness was unreliable. On the other hand, the depth of the unconscious state was a fairly good indicator of the severity of the injury. Paralysis of the cranial nerves, a somewhat uncommon finding, was of only moderate importance in the diagnosis of the intracranial condition. Other factors, such as trauma outside of the skull and complicating diseases, occurred often enough to lead to distinct confusion.

These points in regard to diagnosis conform to the accepted standards of today and only serve to point out how much diagnosis is dependent upon a carefully taken clinical history. Such signs as inequality of the pupils, subconjunctival hemorrhage, and stiffness of the neck are of little value in visualizing the extent of a brain laceration, hemorrhage or edema.

Russell then goes on to make some important remarks in regard to prognosis. He found that in his series of two hundred cases, during the acute stage of the disease, prognosis was extremely difficult, both in regard to survival and length of illness. He points out, however, that patients above the age of forty or fifty were much less likely to recover than those below that age, and that the duration of the period of unconsciousness, or more particularly, the depth of the unconsciousness was of some value in estimating the prognosis.

Treatment, according to Russell, has in the past been largely directed toward reducing intracranial pressure as soon as the initial stage of shock has passed off. This is based on the assumption that cerebral edema is a dangerous complication in that it may lead directly to death through raising the intracranial pressure

*Russell, W. Ritchie. "Cerebral Involvement in Head Injury," Brain 55:549, 1932.

and that it is the cause of prolonged unconsciousness. Russell adds that cerebral edema is not so dangerous a factor as it is usually considered. He seldom found the pressure of the cerebrospinal fluid above 300 millimeters of water, quite low when compared with the pressure readings commonly found in diseases such as meningitis and cerebral tumor. There was no evidence, in his series of cases, that death was due to increased intracranial pressure. Cerebral edema can certainly prolong the duration of the loss of consciousness and dehydrating measures may hasten the return to the conscious state. It is somewhat questionable, however, whether this is desirable in patients with severe injuries. Increased intracranial pressure, moreover, provides a powerful means of controlling hemorrhage from torn cerebral capillaries and veins and its artificial reduction may aggravate bleeding. There is much of common sense in these views and it seems quite possible that attempts to reduce increased intracranial pressure by active measures are not always justified. If the period of unconsciousness is prolonged, it, possibly, should be assumed that this is nature's device to keep the patient quiet and prevent hemorrhage from becoming more active. In cases where extreme restlessness occurs, the use of morphia is certainly desirable. Lumbar puncture, if it can be done under circumstances which do not bring on violent reactions, is desirable for diagnosis. The value of removing the fluid in the hope that blood may be more quickly taken out of the subarachnoid space is somewhat questioned on account of the evidence now at hand that the red blood corpuscles disappear within a day or two without such measures.

The diagnosis, prognosis and treatment, therefore, of cranial injury after head trauma are in an unsettled state. Presumably, if the damage to the brain is severe, particularly if the lesion is in the midbrain, death will ensue no matter what treatment is given. In the other cases it would seem evident that vigorous combating of the initial shock, withdrawal of small amounts of spinal fluid, and prevention of restlessness are the three important measures in caring for patients with head injuries. The more modern devices of treatment, such as the use of intravenous hypertonic solutions, repeated lumbar puncture, and even subtemporal decompression of the brain are all methods not as yet proved to be either essential or even valuable in the treatment of this condition.

PERIODIC PAYMENT PLAN FOR THE PURCHASE OF HOSPITAL CARE

Dr. C. Rufus Rorem, economist on the staff of the Julius Rosenwald Fund, who has made studies for the Committee on the Costs of Medical Care and whose services have been lent to the Council of the American Hospital Association, spoke on the above subject at the Massachusetts General Hospital on Thursday, April 6.

The problem facing people today, according to Dr. Rorem, is not avoidance or reduction of the costs of medical care, but a method for meeting them. That the costs are practicably payable is indicated by the fact that they are lower than the easily met bills of the people for cosmetics, candy and tobacco. The difficulty lies in the unpredictability of the amount and the time of the demand; consequently a system of budgeting is the only way of avoiding philanthropy or taxation to pay the costs.

Some form of group insurance to pay for hospital expenses is already in use in some fifty communities, and is about to be tried out in metropolitan New York, the system employed consisting of a set annual payment to cover a certain amount and type of hospital care; this amount and type varying according to the scheme in use.

It is only in the last three years that successful attempts at periodic payment plans have been made, the first being in Dallas, Texas, where the Baylor University Hospital entered into an agreement with a group of school teachers. The original charge was six dollars, increased the next year to eight dollars a year. In Dallas, with three open staff hospitals, there are now 15,000 employed persons enrolled, with a free choice of hospital by the patient. The same general plan is being used in San Antonio and Houston with a fair degree of success.

In Kansas City a group plan enrolls individuals regardless of whether they are employed, at twelve dollars a year per individual. In Newark, N. J., all the hospitals but one have formed themselves into a non-profit making association, with an outside agency securing subscribers on a commission basis. The annual payment is $12.20; the hospital is paid six dollars a day per patient. This plan has only been in operation for a month or so, but so far seems to be successful.

Physicians in the communities where these plans have been in effect seem to have benefited somewhat by them, but are divided into two camps according as they do or do not want physicians' fees included. While no actuarial figures are as yet available, it would seem that what risk is involved is taken by the hospitals. In certain states where the question has been raised, rulings have been obtained which indicate that this type of payment plan does not come under the insurance acts, but may rather be classed as a contract for services.

THE PRESENTATION OF THE HENRY JACOB BIGELOW MEDAL

On May 3, 1933 The Boston Surgical Society will present the Henry Jacob Bigelow Medal to Dr. Harvey Cushing as set forth in the announcement on page 916 of this issue.

These exercises will be of especial interest because of the selection of the recipient of this honor who is the authority in the department of surgery to which he has devoted the major years of his life as well as the addresses by the President, Dr. David Cheever, and by Dr. I. C. Walker.

This presentation is the eighth in the series which includes the names of Dr. William J. Mayo, Dr. William W. Keen, Dr. Rudolph Matas, Dr. Chevalier Jackson, Professor George Grey Turner, University of Durham, F.R.C.S. and Dr. John M. T. Finney.

The privilege of awarding this medal to the recipient thereof was conferred on the Boston Surgical Society by Dr. William Sturgis Bigelow, the son of Dr. Henry Jacob Bigelow.

The selection of Dr. Cushing as the recipient of this honor is a gracious recognition of his contributions to scientific surgery.

AN IMPORTANT MEETING

A meeting of interest to the laity as well as physicians will be held May 10, 1933, as set forth in the announcement of the Massachusetts Society for Mental Hygiene on page 919 of this issue.

Consideration of the problems inherent in mental hygiene must be general if better conditions are to prevail in preventing mental illness.

THIS WEEK'S ISSUE

Contains articles by the following named authors:

Kickham, C. J. E. A.B., M.D. Harvard University Medical School 1927. Assistant Urologist, Pondville State Cancer Hospital. Assistant Surgeon, Carney Hospital, Outpatient Department. His subject is "The Report of a Case of Calcified Hydrocele Simulating Tumor." Page 869. Address: 12 Bay State Road, Boston.

Chute, Richard. A.B., M.D. Harvard University Medical School 1927. Assistant in the Urological Department, Massachusetts General Hospital. Visiting Surgeon, Genito-Urinary Service, St. Elizabeth's Hospital. His subject is "The Value of Cystometry." Page 869. Address: 352 Marlborough Street, Boston.

Prather, George C. M.D. Harvard University Medical School 1924. F.A.C.S. Associate Urologist, Beth Israel Hospital. Urologist, Newton Hospital. Assistant Urologist, Boston Lying-In Hospital. His subject is "The Use of Cortin Following Removal of a Large Adrenal Tumor: Case Report." Page 872. Address: 99 Commonwealth Avenue, Boston.

Riley, Augustus. A.B., M.D. Harvard University Medical School 1907. F.A.C.S. Assistant Professor of Genito-Urinary Surgery, Harvard Medical School. Visiting Surgeon in Urology, Boston City Hospital. Consulting Urologist, Malden Hospital. Consultant in Genito-Urinary Surgery, Symmes Arlington Hospital and Boston Dispensary. His subject is "Renal Tumor with Unusual Pyelogram. Case Report." Page 877. Address: 868 Beacon Street, Boston.

Lower, William E. M.D. University of Wooster Medical Department 1891. F.A.C.S. Formerly Associate Surgeon, Lakeside Hospital and Attending Surgeon, Lutheran Hospital. Director of Surgery, Mt. Sinai Hospital, 1916-1924. Associate Professor of Genito-Urinary Surgery, Western Reserve University. Director, Cleveland Clinic. His subject is "The Endocrine Influence on the Male Sex Organs." Page 878. Address: Cleveland, Ohio.

Moore, George A. S.B., M.D. Harvard University Medical School 1911. F.A.C.S. Surgeon, Moore Hospital, Brockton. Consulting Surgeon, St. Luke's Hospital, Middleboro; Bridgewater State Hospital and Plymouth County Hospital. His subject is "Bicornate Uterus with Report of an Unusual Case." Page 887. Address: 167 Newbury Street, Brockton, Mass.

Benedict, Edward B. A.B., M.D. Harvard University Medical School 1923. Assistant in Surgery, Harvard Medical School and Massachusetts General Hospital. Address: Massachusetts General Hospital, Boston. Associated with him is

Jones, Chester M. A.B., M.D. Harvard University Medical School 1919. Physician, Massachusetts General Hospital. Assistant Professor of Medicine, Harvard Medical School. Address: Massachusetts General Hospital, Boston. Their subject is "Hematopericardium." Page 891.

Davis, Michael M. B.A., Ph.D. Director for Medical Services, Julius Rosenwald Fund, Chicago. Formerly, Secretary of the Associated Out-Patient Clinics Committee of the United Hospital Fund, New York City and Director, Boston Dispensary. His subject is "Trends and Programs in Medical Care." Page 892. Address: 4901 Ellis Avenue, Chicago, Illinois.

Austin, Arthur Everett. A.B., A.M., M.D. Harvard University Medical School 1887. Professor (Emeritus), Tufts Medical School. Physician (Emeritus), Boston Dispensary. His subject is "Progress of Gastroenterology in 1932." Page 898. Address: 270 Commonwealth Avenue, Boston.

The Massachusetts Medical Society

THE TREASURER'S REPORT

Covering Dividend Distribution

The Treasurer of the Massachusetts Medical Society makes the following report, covering the dividend distribution to the District Societies, for 1933:

Owing to the "Bank Holiday" which started March 4, District Treasurers, in a few instances, were unable promptly to send in the February checks for annual dues then received by them; and the Treasurer of the Society was, in like manner, unable to collect a few of the checks from Fellows which were forwarded to him. This has delayed the date for making up the total payments to be counted in reckoning the unit dividend. Now, however, allowing for a very few checks received on banks now under conservator or not yet reopened, the Treasurer reports that the total number of payments received, to count for the dividend computation, is 3177, thus making the dividend for each paid Fellow $1.5738. This is in accordance with the vote of the Council to distribute the sum of $5000 to District Societies in 1933.

The following table gives the number of payments in each District and the dividend to each District Society:

District	Number Reported Paid	Check
Barnstable	33	$51.94
Berkshire	83	130.63
Bristol North	50	78.69
Bristol South	132	207.74
Essex North	140	220.33
Essex South	158	248.66
Franklin	29	45.65
Hampden	177	278.56
Hampshire	41	64.53
Middlesex East	69	108.59
Middlesex North	92	144.79
Middlesex South	578	909.66
Norfolk	567	892.35
Norfolk South	72	113.32
Plymouth	86	135.35
Suffolk	497	782.18
Worcester	307	483.16
Worcester North	66	103.87
	3177	$5000.00

In 1932, for comparison, the total number of payments for the dividend count was 3277.

Charles S. Butler, M.D., *Treasurer.*
April 18, 1933.

BOSTON MEDICAL LIBRARY

The fifth meeting of the Boston Medical History Club was held at the Library on March 21, 1933. The first paper was by Dr. Hyman Morrison on "Paul Langerhans and His Thesis." Aside from the fact that the subject of this thesis for the doctor's degree was an epoch-making research upon the function of the anatomical structures characterizing that part of the intestinal coats, known as the Islands of Langerhans, it was remarkable in that it should have fallen to the lot of an undergraduate medical student to have made so important a discovery, for it is recognized as the first real contribution on the histology of the pancreas. In the discussion of the paper, Professor Lewis of the Histological Department at the Harvard Medical School emphasized the significance of Langerhans' discovery and commended the translation of the thesis which Dr. Morrison had made from an original copy in the Library, suggesting that a reprinting of this thesis in a translation would be a very desirable service to render medical science.

The second paper by Dr. C. F. Painter was an account of "Botany as a Pre-medical Subject." The part played by the science of botany from the days when it could scarcely be so designated, but still was as near an approach to a science as was known, was traced from the very beginning of university medical teaching down through the period when "medicine men" and later regular practitioners measured their therapeutic ability by the standard of what they knew of herbs and roots. In the early days of the universities, botany was one of the most prominent of the science subjects, taught under the head of Natural Philosophy. Hence it was that the clergy as well as those who studied medicine had the opportunity to be equally well versed in the therapeutics of their time and ministered to the physical wants of their parishioners in communities where physicians were scarce. In our colonial history, this was quite common. Many of the botanical gardens that exist today had their origin in the custom, common enough in the seventeenth and eighteenth centuries, for doctors to cultivate medicinal plants in their own gardens. A great many of our professional forbears were very good botanists and Dr. Howard Kelley has collected in an interesting volume brief biographies of quite a number of them. At the time of the establishment of the first medical school in this country, botany occupied an important place in the curriculum. Gradually, for reasons not easily to be determined, it has disappeared as a subject suitable for the preparation of physicians for their calling. In large measure, as a practical matter, it is perhaps due to the fact that our present-day ther-

apy is based upon synthetic chemistry. Who have been the sufferers in consequence of this change is difficult to decide. The public has probably benefited in that it has escaped the compound prescription, but the doctor has lost in that he knows nothing of a fascinating study that has all the scientific advantages of other subjects that have taken its place, and has a cultural interest that none of them possess.

A gratifying response has been made to the request for reprints to enable the Library to prepare a "packet service" for use by the membership. An interesting collection of instruments belonging to the pre-aseptic days of operative surgery has been received since the request for such gifts appeared in the *Journal*. It is hoped that more will follow.

MISCELLANY

A RADIO MESSAGE PREPARED AND SPONSORED BY THE COMMITTEE ON PUBLIC EDUCATION OF THE MASSACHUSETTS MEDICAL SOCIETY FOR THE DEPARTMENT OF PUBLIC HEALTH

Only a Sore Throat*

BY LYMAN RICHARDS, M.D.

"Only a sore throat!" How many times one hears this explanation for a friend's failure to eat his usual breakfast or for keeping a child home from school. "Only a sore throat"—much as one might say, "just a touch of indigestion." People are constantly disregarding the fact that a sore throat is many times the first symptom of several diseases, which aside from being a menace to the individual, also expose his family and friends to the same illness. Let us consider some of the possibilities.

1. In the first place a sore throat may be one of the effects of the common head cold. Infection, commonly involving the tonsil, may produce intense inflammation, indicated by painful swallowing, increased redness of the throat membranes and small white patches on the tonsils, so-called acute tonsillitis. Swollen glands may be a further complication, and sometimes an abscess may form to produce a quinsy sore throat, one of the most painful of all throat infections. While it is true that such an attack of acute tonsillitis may run its course and the patient recover without any special form of treatment, nevertheless proper measures for relief and prevention of contraction of the condition by others are obviously indicated. Rest in bed, free administration of liquid nourishment, gargles, hot applications, aspirin and sometimes a sedative will make the patient much more comfortable and hasten his recovery and moreover tend to prevent the development of any complication. Such attacks of tonsillitis, even if of only mild local effect, are known to produce serious damage to other organs such as the heart, kidneys, and joints and the trifling time lost in proper care at the onset of, "only a sore throat," may prevent untold discomfort or even permanent disability later. Children with sore throats should be kept home from school, the business man from his office and his wife from her bridge luncheon.

"Only a sore throat" may be the only outstanding evidence of one of our most contagious infections, scarlet fever. Unless attention is paid to the throat symptoms and a physician called, the rash and other signs may disappear or pass unnoticed, no quarantine will be instituted and the patient will be allowed to go among his friends and playmates, thus exposing them to scarlet fever and all its possible complications. No person has a right thus to inflict a serious illness on the community and yet by failing to give heed to what he considers as "only a sore throat," he has become a public menace, not to mention running a serious risk to his own future health. Any patient with scarlet fever must first of all be quarantined and must then be placed under closest watch of a physician until all danger of complication is past. Neglect to properly diagnose the cause of the sore throat may be the cause of needless suffering and crippling of numberless innocent individuals.

So it is with another contagious infection, diphtheria. Fortunately not so common as before the use of antitoxin and the immunizing toxin-antitoxin, this disease starting with "only a sore throat" is capable of producing most serious symptoms, threatening life itself and leaving paralyzing after-effects, which may never entirely clear up. Only by a prompt examination of the throat, which will exhibit the characteristic patches of diphtheritic membrane, can this disease be detected in time to prevent serious secondary effects. Cultures must be taken for laboratory examination, and pending the bacteriologist's report diphtheria antitoxin must be given in sufficient doses to guard against the effects of the poison produced by the diphtheria germ. Failure to give such a throat condition immediate and proper treatment may result in downward extension of the membrane into the voice box or windpipe, producing severe obstruction to breathing and even suffocation and death. And as in scarlet fever all these dreaded results can be passed on to a friend or neighbor's child, if the possibility is not borne in mind that this complaint of soreness may mean something far more urgent than "only a sore throat". Only a physician's examination will establish a diagnosis, and it is far better to call one at the onset of symptoms and be told that fortunately the case is one of mild tonsillitis or pharyngitis, than to permit a case of diphtheria or scarlet fever to pass unrecognized into the later stages of serious complications.

At times a sore throat, occurring in the form of

*Station WBZ, November 22, 1932, 4:15 P.M.

so-called streptococcus sore throat, occurs in epidemic form, spread among a community through the agency of some food, like milk. Such epidemics as occurred in Lee, Massachusetts, may prove extremely violent and until properly controlled and checked by rigid quarantine may spread like wild-fire. In the face of such a situation anyone having the slightest suggestion of a sore throat should at once give it attention and isolate himself, otherwise he may be the means of spreading the disease still further in his community and defeat the most painstaking efforts of public health officials to stamp it out.

Less acute forms of sore throat are still sufficiently contagious to demand attention for the sake, at least, of one's immediate associates. A form of mouth infection called "trench-mouth" is due to a special germ, which produces a sore throat, and which can be spread from person to person through the agency of dishes. Proper treatment under a physician's supervision will usually serve to clear up this form of throat infection but neglect, excused on the ground that one has "only a sore throat," will permit the damage to go on to the detriment of the teeth and gums, requiring long periods of tedious treatment.

Such chronic conditions as tuberculosis, syphilis and cancer manifest themselves at times by "only a sore throat". Neglect of these at the outset means delayed treatment, which thereby allows the process to extend to the point of making the recovery far more difficult or even hopeless. The value of the ounce of prevention was never better emphasized than in the case of a sore throat. Often it is fortunately a transient matter, which recovers spontaneously with no visible ill effects. Many times, however, it is but the forerunner of a serious condition menacing not only the individual but his family, or neighbors, or schoolmates, who are thus needlessly exposed to possible suffering. Consult your physician when you have a sore throat. If he assures you that you have nothing serious, be glad; if it is an indication of one of the conditions I have mentioned, be assured that you have given proper attention to "only a sore throat," before something more serious does develop.

RÉSUMÉ OF COMMUNICABLE DISEASES IN MASSACHUSETTS FOR MARCH, 1933

This month continues the low incidence of communicable disease noted in previous reports.

The number of cases of diphtheria is again the lowest on record for the month and is less than one-third of the average for the five previous years.

Typhoid fever, anterior poliomyelitis and epidemic cerebrospinal meningitis likewise show a very low prevalence.

This is the eleventh consecutive month that pulmonary tuberculosis has made a new low record for the month.

Lobar pneumonia had its peak in January this year instead of March as it did last year, and the number of cases has been consistently decreasing.

The incidence of measles, German measles and influenza has been somewhat lower than usually expected at this season.

Scarlet fever continues somewhat high; and chicken pox and whooping cough have been on the increase.

Mumps and non-pulmonary tuberculosis were reported about the number of times expected.

MONTHLY REPORT FOR MARCH, 1933

Disease	Mar., 1933	Mar., 1932	Average*
Anterior Poliomyelitis	1	3	3
Chicken Pox	1505	1018	952
Diphtheria	90	169	280
Dog Bite	389	411	360
Epidemic Cerebrospinal Meningitis	2	9	14
German Measles	46	77	276
Gonorrhea	476	490	477
Lobar Pneumonia	418	807	641
Measles	1547	2415	3603
Mumps	1098	1401	1067
Paratyphoid Fever	1	0	0
Scarlet Fever	1914	2327	1584
Syphilis	364	400	304
Tuberculosis, Pulmonary	362	423	443
Tuberculosis, Other Forms	48	39	54
Typhoid Fever	9	9	11
Whooping Cough	1138	1061	1068

*Average number of cases for March during the preceding five years.

RARE DISEASES

Actinomycosis was reported from Boston, 1; New Bedford, 1; Total, 2.

Anterior poliomyelitis was reported from Lowell, 1.

Anthrax was reported from Lynn, 1; Peabody, 1; Total, 2.

Dysentery was reported from Danvers, 1.

Epidemic cerebrospinal meningitis was reported from Boston, 1; Melrose, 1; Total, 2.

Malaria was reported from Medfield, 1 (Therapeutic).

Septic sore throat was reported from Boston, 8; Bridgewater, 1; Cambridge, 1; Chicopee, 2; Fall River, 1; Lowell, 1; Lynn, 1; Medford, 2; New Bedford, 1; Quincy, 1; Revere, 3; Saugus, 1; Springfield, 1; Topsfield, 1; Warren, 1; Winthrop, 1; Worcester, 1; Total, 28.

Trachoma was reported from Boston, 1; Cambridge, 1; Total, 2.

Trichinosis was reported from Lexington, 1.

Paratyphoid fever was reported from Sharon, 1.

COMPARISON OF DISEASE INCIDENCE IN CONNECTICUT WITH 1932 AND SEVEN YEAR AVERAGE

MONTH ENDING APRIL 1, 1933

Diseases	1933 Week ending March 11	1933 Week ending March 18	1933 Week ending March 25	1933 Week ending April 1	Average cases reported for week corresponding to April 1 for past seven years	1932 Week ending March 12	1932 Week ending March 19	1932 Week ending March 26	1932 Week ending April 2
Cerebrospinal Men.	2	1	1	—	1	—	—	1	1
Chicken Pox	167	135	134	117	66	114	94	44	64
Conjunctivitis Inf.	—	—	—	1	1	1	1	—	—
Diphtheria	5	4	6	10	17	1	8	7	3
Dysentery Bacillary	—	—	—	—	—	3	—	—	—
Encephalitis Epid.	—	—	—	—	—	2	—	—	1
German Measles	9	3	2	6	42	9	5	4	2
Influenza	7	12	19	11	33	28	70	38	58
Measles	328	159	240	214	319	236	200	154	181
Mumps	105	82	88	119	83	53	61	89	40
Pneumonia (Broncho)	23	26	22	29	44	40	50	43	44
Pneumonia (Lobar)	27	35	44	44	67	60	76	63	70
Scarlet Fever	115	176	147	167	107	109	125	91	99
Septic Sore Throat	1	3	4	6	3	5	4	5	8
Smallpox	—	3	—	1	—	4	—	2	1
Tetanus	—	—	—	1	—	—	1	1	—
Trachoma	—	1	—	—	—	—	—	—	—
Trichinosis	—	—	8	1	—	—	—	—	—
Tuberculosis (Pul.)	24	35	16	32	28	20	30	12	35
Tuberculosis (O. F.)	3	1	2	3	3	—	6	2	7
Typhoid Fever	1	—	—	2	—	1	—	—	—
Undulant Fever	—	2	1	1	—	—	1	2	—
Whooping Cough	94	106	87	111	68	109	128	99	96
Gonorrhea	33	15	26	26	28	14	13	29	26
Syphilis	70	49	33	36	36	37	50	38	53

Remarks: No cases of Asiatic cholera, glanders, plague, or yellow fever during the past seven years.

RECENT DEATH

COPP — OWEN COPP, M.D., died at Seville, Spain, as reported in the *Boston Transcript* in April, 1933.

Dr. Copp graduated from the Harvard University Medical School in 1884 and joined the Massachusetts Medical Society in 1888. He moved to Philadelphia in 1911 and resigned from the Society in 1912.

He served as executive officer of the Massachusetts State Board of Insanity for twelve years preceding his removal to Philadelphia where he had charge of the Pennsylvania Hospital for the Insane.

He was born in Salem, New Hampshire, in 1858, and graduated from Dartmouth College in 1881.

He served as assistant physician at the Taunton Insane Hospital and later as the first superintendent of the Monson State Hospital.

His body will be brought to this country. He is survived by his widow.

OBITUARY

DAVID E. BAKER, M.D.

1857-1933

Dr. Baker graduated from the Harvard Medical School in 1882 after working his way through college. He then served an internship in the Boston City Hospital, later taking the practice of Dr. F. D. Lord of Newton Lower Falls, whose death occurred the following year. He married Harriet Lord in 1885 who, with two daughters, survives him. He spent the year 1888 studying surgery in Berlin, Munich, and Vienna. In 1890 he removed to Newtonville where he had a large practice for many years.

Dr. Baker was a skillful surgeon and family doctor. His success lay in his well-trained mind and hand, his single-hearted devotion to his patients and in a large measure to the good cheer radiating

from his kind, sympathetic, and courageous spirit. This was infectious, and to many a home he brought trust and hope in dark days of sickness, pain, and fear. His name was a household word. His love for his home and for his work filled his busy days. He was faithful in attendance on the medical meetings of State and District societies, serving on the Council and as President of the Middlesex South District Medical Society. He was an honor to our profession, holding sacred its high ideals through a long life of service to the sick, the poor, and the needy.

ENOS H. BIGELOW.

NOTICES

THE AMERICAN SOCIETY FOR THE CONTROL OF CANCER

This Society will move from 25 West 43rd Street to 1250 Sixth Avenue, Rockefeller Center, New York, N. Y., May 1, 1933.

THE BOSTON SURGICAL SOCIETY

THE PRESENTATION OF THE HENRY JACOB BIGELOW MEDAL

On Wednesday evening, May 3, 1933, at 8:30 o'clock, in John Hancock Hall, 90 St. James Avenue, Boston, the Boston Surgical Society will present the Henry Jacob Bigelow Medal to Dr. Harvey Cushing.

Members of the medical profession and their guests will be welcome.

THOMAS H. LANMAN, *Secretary.*

RADIO HEALTH MESSAGES

MAY-JUNE, 1933

Sponsored by the Public Education Committee of the Massachusetts Medical Society and the Massachusetts Department of Public Health.

Courtesy WBZ. Tuesdays, 4:30 P.M.

May
- 2 High Blood Pressure
- 9 Goiter
- 16 Arteriosclerosis
- 23 Chronic Bronchitis
- 30 Neurasthenia

June
- 6 Safer Maternity
- 13 The Care of the Skin
- 20 A Heart to Heart Talk
- 27 Social Service in Public Health

STATE HOUSE BROADCAST

Sponsored by the Massachusetts Department of Public Health.

Courtesy WEEI. Fridays, 12:45 P.M.

Health Subjects of Public Interest discussed by the Division Directors of the Department.

RADIO HEALTH FORUM

Queries from the public are answered under the sponsorship of the Department of Public Health.

Courtesy WEEI. Fridays, 4:50 P.M.

Questions on Health and Prevention of Disease may be sent to Radio Health Forum, State Department of Public Health, State House, Boston.

REPORTS AND NOTICES OF MEETINGS

THE SUFFOLK DISTRICT MEDICAL SOCIETY

A clinical meeting of the Suffolk District Medical Society was held in the Moseley Memorial Building at the Massachusetts General Hospital on March 29, 1933. Dr. J. H. Means presided. Dr. Charles F. Wilinsky briefly outlined the plans of the Boston Health Department for expansion in the field of child welfare work whereby it is expected that more of the preschool children will be placed under the care of the practitioners of the city.

Dr. Frederick Lord spoke on "Advances in the Investigation and Treatment of Certain Broncho-Pulmonary Conditions." These advances roughly parallel those in roentgenology. In the childhood type of tuberculosis the diagnosis is established by x-ray evidence of hilum involvement and even the adult type may progress for months in a child before there is any but x-ray or tuberculin test evidence of the disease. In selecting cases of tuberculosis for surgical treatment the x-ray is indispensable, as it is in other surgical conditions such as empyema, abscess, and tumor. In these cases lateral views are valuable.

In the diagnosis of foreign bodies two types should be recognized. With partial bronchial obstruction the foreign body may act as a ball-valve. There is then an acute pulmonary inflation of the corresponding lobes, visualized on the plates as an increased radiance. Plates taken at the end of a deep expiration show this more clearly than the usual ones taken at the end of inspiration. Usually, however, a foreign body will completely obstruct and there is collapse of the lobes with the familiar signs of that condition.

Lipiodol should be used only when the diagnosis cannot otherwise be made and is used chiefly in establishing the diagnosis of bronchiectasis and in determining its operability. The bronchoscope is more valuable in the diagnosis of tumor than is lipiodol and it is only rarely that either is necessary to establish that of lung abscess.

Dr. Wyman Whittemore discussed "Acute and Chronic Empyema." Acute empyema is, with rare

exceptions, not a surgical emergency. Open drainage is used for encapsulated empyemas and in cases where aspiration has given thick pus. Closed drainage is used for all desperately ill patients regardless of the organism or the character of the pus. It should also be used in all streptococcus cases and in secondarily infected tuberculous effusions. At the Massachusetts General Hospital it is thought that simple methods are equally as satisfactory as the complicated apparatus used in some hospitals. Some surgeons advise rib resection at the end of a week in the closed cases but Dr. Whittemore believes that this is necessary only if drainage is unsatisfactory and that it may delay convalescence if done routinely. Postoperatively the cavity is irrigated with Dakin's solution provided there is not a bronchial fistula which is tested for with saline before using the Dakin's solution. Setting-up and breathing exercises and the use of blow-bottles should be started as soon as possible and it is not wise to keep the patient in bed too long. The ordinary postpneumonic case should be well in five or six weeks; if caused by a streptococcus it usually takes a few weeks longer. Persistent pyrexia may be due to faulty drainage, encapsulated pus, skin infection, persisting pneumonitis, mediastinal glands, or a pleuropulmonary fistula. A walled-off pocket of pus is the only one requiring further surgery and it should be diagnosed only when the x-ray shows a fluid level.

Chronic empyema is becoming less common. It is due to late or poor drainage, pleuropulmonary fistula, poor after-care in an operative case, tuberculosis, or a foreign body in the cavity. The only treatment is surgical as the cavity must be obliterated. Dr. Whittemore advises drainage, leaving the drain in place until the cavity is gone or a plastic operation is done. It is usually wise to wait six months before doing a thoracoplasty or other plastic operation.

Dr. Donald King read a paper on "Non-Tuberculous Pulmonary Suppuration." Between 1924 and 1931, 213 patients with undoubted lung abscesses were seen at the Massachusetts General Hospital and of these 211 have been followed. Thirty-nine per cent followed tonsillectomy, twelve per cent were after tooth extraction, five per cent after other upper respiratory operations, nine per cent after other operations. Of the remaining, twenty-three per cent were primary and eight per cent followed pneumonia. Approximately forty per cent were cured, and the same number died. Medical treatment yielded a few more cures than did surgical but it must be remembered that the surgically treated cases were the severe ones of long standing or those which had not responded to medical treatment. Only 23 cases received what could be considered adequate treatment with arsphenamines and of these more than sixty per cent were cured. Bronchoscopic drainage was used in only seven cases and then usually only once so that its efficacy cannot be evaluated. The medical treatment consists of general supportive measures and postural drainage. For the latter Dr. King has designed a movable frame on which the patient may be strapped and tilted or rotated into any desired position.

Dr. King also discussed the treatment of bronchiectasis and showed a series of lipiodol plates to illustrate the diagnosis and operability of several cases.

Dr. Edward D. Churchill spoke on "Intrathoracic Tumors." Of the mediastinal tumors lymphoma responds well to x-ray therapy and should not be operated upon. In doubtful cases a therapeutic test is indicated. A sharply outlined tumor of the anterior mediastinum is likely to be a dermoid cyst and is relatively easily removed unless secondarily infected. A similar tumor in the posterior mediastinum may be a neurofibroma. Primary sarcoma of the lung is not uncommon, may be of great size, and is frequently operable. Echinococcus cyst, while not a true tumor, is occasionally seen in individuals from the Mediterranean countries and may be cured by surgery.

Primary lung carcinoma probably always arises from the bronchial epithelium and hence the early symptoms are usually cough and hemoptysis. However, it is seldom recognized until the late stages when it has invaded the lung or has caused collapse and secondary pneumonitis. Dr. Churchill does not agree with the common teaching that primary lung carcinoma has an especially vigorous metastatic capacity and feels that this opinion has come from the postmortem room and the neurosurgical clinics rather than from a study of early cases. The chance of cure, as with malignancy elsewhere, rests upon an early diagnosis. Roentgen examination is frequently negative in the early, curable stage and bronchoscopy is necessary to make the diagnosis. This is being done more and more in some tuberculosis sanitaria on those patients with a story of cough and hemoptysis who do not show Koch's bacillus in the sputum and have inconclusive x-rays. Dr. Churchill presented such a case, a young housewife who had been in a sanitarium for nearly a year before bronchoscopy was done and a primary carcinoma of the right lower bronchus demonstrated. At operation he found it necessary to remove both the right lower and middle lobes. This was done successfully and the patient is now apparently well a year after the operation.

HARVARD MEDICAL SOCIETY

The Harvard Medical Society held its stated meeting on Tuesday evening, March 28, in the amphitheatre of the Peter Bent Brigham Hospital. Dr. Reginald Fitz presided.

A surgical and a medical case were first presented. The first patient was a 26-year-old, married, Italian woman whose chief complaint had been pain in her extremities on exposure to cold. The

clinical picture was typical of combined scleroderma and Raynaud's disease. Right and later left cervical sympathectomies were performed, with marked improvement in the condition of the upper extremities. The patient had now returned to seek lumbar sympathectomy for her lower extremities.

The second patient was a 66-year-old, single woman who had complained of occasional nausea and vomiting for two years, and of weakness for one year. Her past history was not remarkable save perhaps for the fact that her hair had turned gray at 23. Two years before entry she had had a chill followed by nausea, vomiting and icterus. Such spells recurred every five to six weeks subsequently. On physical examination there was a smooth tongue and sore mouth. The feet and back of the legs seemed insensitive to heat, and there was diminished vibratory sense in the shins and ankles. The skin was pale and the hair white. The red blood cell count was 1,500,000, hemoglobin 28 per cent, and there was marked variation in the size and shape of the red cells, with numerous macrocytes and a few nucleated forms. The reticulocyte count was 1.1 per cent. The color index was 1.14, the cell volume 17 x 10-11. Ten cc. of Lederle liver extract were administered intramuscularly. In four days the reticulocyte count was eight and one-half per cent, and five days later it was 26.5 per cent. Improvement was rapid, the red count being over three million and the hemoglobin 62 per cent at present.

Dr. William B. Castle was the first speaker and his subject was "The Etiology of Pernicious Anemia and Related Macrocytic Anemias." Dr. Castle reviewed the work done by himself and his co-workers. The working hypothesis was deduced from reasoning that certain people develop pernicious anemia on the same diet as that eaten by others who do not, because of some kind of gastric defect. Two ways are open to prove this, removing the stomach, or substituting normal digestive action in the victim of pernicious anemia. The reticulocyte response is an indication, par excellence, of the efficacy of any treatment, and so this was the indicator used in appraising the results. Dr. Castle went on to speak of experiments along the lines of the latter method of attack. Beefsteak fed alone will produce no reticulocyte response; likewise gastric juice alone is followed by no rise; but both in contact in the patient's stomach produce a good response. It has been proved, furthermore, that the "intrinsic" factor of the gastric juice is not present in the saliva or duodenal secretion of the normal individual. It is thermolabile. It is not identified with hydrochloric acid, pepsin, rennin, or gastric lipase. As for the "extrinsic" or food factor, this has been shown to be present in the washed proteins of beef juice and has been obtained from autolyzed yeast. It is tentatively identified as vitamin B_2. It is frequently absent in the diet in sprue. However sprue may result from a failure of the intrinsic factor.

The common factor for producing the macrocytic anemia is the failure of the specific reaction between the extrinsic and the intrinsic factors. These anemias should then occur both where on the one hand the diet is deficient in vitamin B_2, and on the other hand where, although the diet is not deficient, gastric anacidity, indicating frequently a lack of the intrinsic factor, is found. Thus, sprue and the macrocytic anemias of the tropics occur in communities or individuals partaking of defective diets and show gastric anacidity less commonly than is found in patients with Addisonian pernicious anemia, who usually have more normal diet habits. In many cases a combination of gastric defect and dietary deficiency may exist, which would have the same result upon the specific hematopoietic reaction as a total absence of either of its components. In closing, Dr. Castle mentioned a third possible factor in the production of pernicious anemia, that the substance necessary for red cell formation may not be absorbed from the intestinal tract although formed in the stomach.

Dr. George R. Minot spoke on "Some General Aspects of Hypochromic Anemia." Under many circumstances this condition can be considered as a disorder of deficient nutrition essentially due to deficiency of iron. Deficiency could arise from lack of ingestion, lack of absorption, or lack of utilization. The utilization could be inhibited by infection, damage to organs and tissues, etc. Chronic blood loss or use of material by the fetus enhances iron deficiency. Iron given intramuscularly can be recovered almost quantitatively in the hemoglobin. Six grams of iron and ammonium citrate by mouth is a sufficient dose for almost all cases, but there are many cases that do not require so large a dose for optimal results. The cases most resistant to treatment are those known as chronic idiopathic hypochromic anemia associated with achlorhydria. Patients with this condition utilize from the intestinal tract less iron than cases of chronic blood loss without achlorhydria. Cases of idiopathic hypochromic anemia, particularly the severer cases, must continue to take iron throughout life or relapse is prone to occur.

The last speaker, Dr. Maurice B. Strauss, spoke on "Hypochromic Anemia in Pregnancy and Infancy." The common occurrence of anemia in pregnancy, with more than half of pregnant women having hemoglobins of less than 70 per cent, was pointed out. It was shown that the anemia is ordinarily of the type associated with defects of gastric secretion and inadequate diets. Pregnant women with normal gastric acidity and good diets do not become anemic, but a majority of pregnant women develop marked reduction in gastric acidity and many have extremely unsatisfactory diets. Either one of these factors may produce anemia. Treatment with six grams of iron and ammonium citrate daily is quite effective. Babies born of anemic mothers show a normal hemoglobin at birth, but at about one year of age are often se-

verely anemic, due to deficient iron storage. If the maternal deficiency is corrected before term, the infants at one year fail to show anemia. Many of the "nutritional anemias" of infants are explained on this basis, the speaker believes. Such hypochromic anemias in mothers and infants are the same as hypochromic anemias elsewhere; they are due to a deficiency in iron, and the treatment is similar for all—adequate iron on a quantitative basis.

THE CLOVER HILL HOSPITAL

Staff Meeting

The next regular staff meeting at the Clover Hill Hospital, 161 Berkeley Street, Lawrence, Mass., will be held on May 4, 1933, at 9 P.M.

John Lovett Morse, M.D., will be the speaker of the evening. His subject is "Recurrent Abdominal Pain in Childhood."

N. F. DeCesare, M.D., *Chairman.*

NORFOLK DISTRICT MEDICAL SOCIETY

Censors' Meeting

The censors of the Norfolk District Medical Society will meet for the examination of candidates on Thursday, May 4, 1933, at 4 P.M., in the Roxbury Masonic Temple, 171 Warren Street, Roxbury, Mass. Fee ten (10) dollars, payable at the time of examination. Applications may be had by addressing the undersigned.

Frank S. Cruickshank, M.D.,
Secretary.

1695 Beacon Street, Brookline.

MASSACHUSETTS SOCIETY FOR MENTAL HYGIENE

In commemoration of the twentieth year of its founding and in commemoration of the twenty-fifth year of the founding of the Mental Hygiene movement, the Massachusetts Society for Mental Hygiene will hold a meeting at the Twentieth Century Club, 3 Joy Street, Boston, May 10, 1933.

Dinner—6:30 P.M.

Chairman: Hon. Herbert C. Parsons, President, Massachusetts Society for Mental Hygiene.

Greetings from the Massachusetts Department of Mental Diseases. James V. May, M.D., Commissioner.

The Work of the Massachusetts Society for Mental Hygiene. C. Macfie Campbell, M.D., Director, Boston Psychopathic Hospital, and a former President of the Society.

Presentation of Honorary Membership in the Massachusetts Society for Mental Hygiene to Clifford W. Beers, Secretary, National Committee for Mental Hygiene, and founder of the mental hygiene movement.

Acceptance by Mr. Beers.

Facts and Fancy in Mental Hygiene. Ira S. Wile, M.D., Associate in Pediatrics, Mount Sinai Hospital, and formerly President, American Orthopsychiatric Association.

Dinner Tickets—$1.50. For those who do not wish to attend the dinner, admission to the speaking following will be fifty cents, payable at the door.

SOCIETY MEETINGS, CONGRESSES AND CONFERENCES

April 24 to May 5—Public Health Institute. See page 858, issue of April 20.

April 27—Clinic in Medicine at Peter Bent Brigham Hospital. See page 861, issue of April 20.

April 28 and May 5—Massachusetts General Hospital, Fracture Service. See page 866, issue of April 20.

May 3—Boston Surgical Society. Presentation of the Bigelow Medal. See page 916.

May 4—The Clover Hill Hospital, Staff Meeting. See notice elsewhere on this page.

May 4 and 11—The Edward K. Dunham Lectures for Promotion of the Medical Sciences. See page 811, issue of April 13.

May 8, 9, and 10—American Gynecological Society. See page 516, issue of March 2.

May 9-10—American Climatological and Clinical Association. See page 769, issue of April 6.

May 10—Massachusetts Society for Mental Hygiene. See notice elsewhere on this page.

May 12—William Harvey Society. See page 765, issue of October 27, 1932.

May 17—New England Physical Therapy Society. See page 1010, issue of December 1.

May 22-May 31—The New England Heart Association. See page 1011, issue of December 1.

June 12-16—Woman's Auxiliary to the American Medical Association. See page 815, issue of April 13.

June 13—The American Board of Obstetrics and Gynecology. See page 607, issue of March 16.

June 13—American Heart Association. See page 768, issue of April 6.

June 28 to July 3—Third International Hospital Association. See page 811, issue of April 13.

August 10, 11, 12—American Delegation to the International Goiter Conference. See page 768, issue of April 6.

October 9-12—American Public Health Association. See page 403, issue of February 16.

DISTRICT MEDICAL SOCIETIES

ESSEX NORTH DISTRICT MEDICAL SOCIETY

May 3—Wednesday, Annual Meeting. See page 769, issue of April 6.

ESSEX SOUTH DISTRICT MEDICAL SOCIETY

Tentative Program

Thursday, May 4, 1933—Censors' Meeting, Salem Hospital, 3:30 P.M.

Tuesday, May 9, 1933—Annual Meeting. Salem Country Club, Forest Street, Peabody. Golf in afternoon; greens fee $2.00. Dinner at 7 P.M. Speaker: Dr. George Burgess Magrath. Subject to be announced later. Ladies invited.

R. E. STONE, M.D., Secretary.

FRANKLIN DISTRICT MEDICAL SOCIETY

Meeting will be held at the Weldon in Greenfield on the second Tuesday of May.

CHARLES MOLINE, M.D., Secretary.

MIDDLESEX EAST DISTRICT MEDICAL SOCIETY

May, at the Meadowbrook Club, Reading.

ALLAN R. CUNNINGHAM, M.D., Secretary.

MIDDLESEX SOUTH DISTRICT MEDICAL SOCIETY

May 4—Censors' Meeting. See page 816, issue of April 13.

NORFOLK DISTRICT MEDICAL SOCIETY

May—Annual Meeting. Time, place and subject to be announced.

May 4—Censors' Meeting. See notice elsewhere on this page.

FRANK S. CRUICKSHANK, M.D., Secretary.
1695 Beacon Street, Brookline.

SUFFOLK DISTRICT MEDICAL SOCIETY

May 4—Censors' Meeting. See page 815, issue of April 13.

WORCESTER DISTRICT MEDICAL SOCIETY

Wednesday, May 10—The Annual Meeting. Place and program to be announced later.

ERWIN C. MILLER, M.D., Secretary.

BOOK REVIEWS

Your Hearing—How to Preserve and Aid It. By WENDELL C. PHILLIPS and HUGH GRANT ROWELL. New York: D. Appleton & Co., 1932. Price $2.00.

This book does not attempt to deal with the problems of the wholly or congenitally deaf. Its purpose is to instruct the layman in the proper care and education of the partially deaf, in order that their handicap may not bar them from a normal life and associations.

Starting with an understood description of the construction and functions of the ear and of its diseases, the authors proceed to a discussion of preventive treatment. From that point the book becomes less medical and more social in its purpose. It shows how, with proper home and social education and coöperation on the part of schools, employers and friends, the partially deaf are better fitted for a normal life than for segregation in institutions with the totally deaf. The importance of early training in lip reading, the value of mechanical aids, the need of medical supervision, the problem of occupational deafness and industrial research, the questions of vocational guidance, marriage and social adjustment are all carefully discussed.

The authors deserve credit for achieving a combination of strict scientific honesty and moral encouragement. They hold out no false hope of miraculous cures, but they do hold out hope of adequate compensations and well-balanced lives for all those who are willing to face their situation squarely and work to better it.

A Standard Classified Nomenclature of Disease. Compiled by The National Conference on Nomenclature of Disease. Edited by H. B. Logie. Published by The Commonwealth Fund. Price $3.50.

For the past three years 27 national societies and governmental bureaus in the medical, clinical, and statistical fields have been collaborating through the National Conference on Nomenclature of Disease, which they created for the purpose in the preparation of a uniform system of naming and classifying diseases. The results of this have been published under the title A Standard Classified Nomenclature of Disease.

As compared with previous nomenclatures, this book, which presents a numerical index of diseases, is much more inclusive and takes into systematic account, as most other nomenclatures do not, both the etiology of the disease and the part of the body affected. It is the first classified nomenclature to be developed by national rather than local interests.

The volume is very well printed and bound; it is logically arranged so that the exact diagnosis can be easily found by reference to an alphabetical index. Every hospital should have one of these books; private physicians would find it useful on many occasions.

Clinique et Thérapeutique Hydro-Climatiques. By MAURICE VILLARET and L. JUSTIN-BESANÇON. Masson & Cie, Paris, 1932. 254 Pages. Price 30 francs.

This is a summary of what France has to offer in the way of climatic and hydrotherapeutic health establishments. There seems to be no good scientific proof that the authors' thesis is based on sound premises. Most diseases which can be so influenced will respond to rest and the ingestion of large amounts of water, with, possibly, warm baths and massage, regardless of where the treatment is carried out. That being the case, it seems somewhat far-fetched to attribute improvement in cures to particular geographic locations of sanatoria or to peculiarities of the water taken by the patient. It would seem that the main importance of such institutions is the psychological effect on patients, who would not otherwise undergo rigid treatment. The American physician of the present day has only too few patients who are able to afford going to France to take such cures.

Non-Tropical Sprue: A Study in Idiopathic Steatorrhoea. By TH. E. HESS THAYSEN, M.D. Levin & Munksgaard, Copenhagen; Humphrey Milford, Oxford University Press, London, 1932. III + 258 Pages.

This is an excellently printed monograph on non-tropical sprue. The author's thesis is that tropical and non-tropical sprue are identical diseases and he seems to have well proved his point. He reviews all the literature and has added eight thoroughly studied cases of his own. He draws no definite conclusions, but he leans toward the avitaminosis or "constitution theory" of its etiology. He summarizes the arguments for and against this disease being the same as pernicious anemia, his chief point being that in sprue the hyperchromic anemia and the achylia are not such constant features as in pernicious anemia. If one should take issue with him, it would be because he has not treated sufficient cases with adequate amounts of intramuscular liver extract to permit him to refute the prevalent idea in this country that pernicious anemia and tropical and non-tropical sprue are more or less manifestations of identical deficiencies.

The book contains numerous tables, a good bibliography and index and the photographs, particularly the microphotographs, are well reproduced.